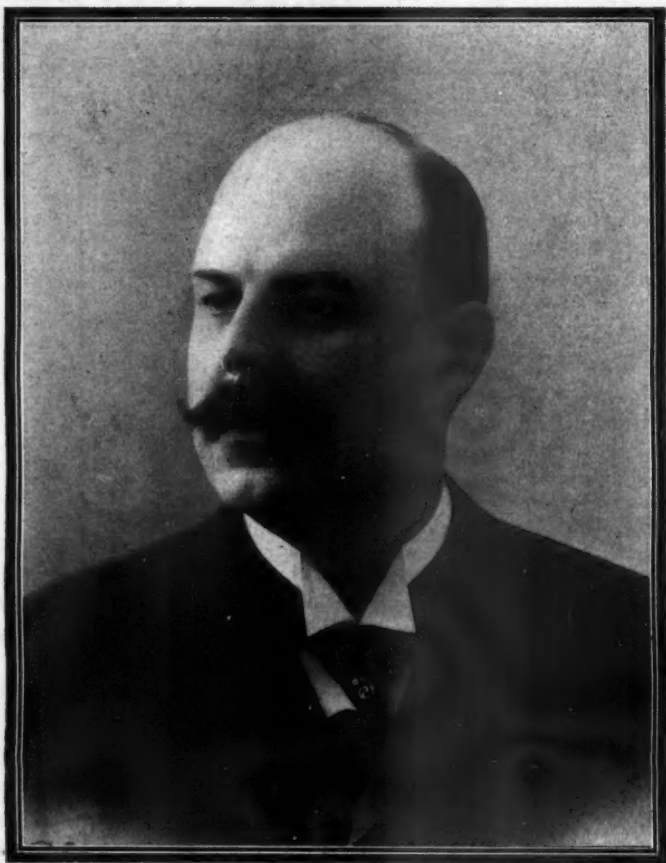


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L. S. DOW

President of the National Automobile & Electric Co., and who, in the Waverly  
Factory, inaugurated Motor Vehicle Manufacture in Indianapolis

# THE MOTOR AGE FOR AND ABOUT CLUB MEN.

**W**ASHINGTON, Feb. 14.—Among the bills pending in Congress is one to regulate the operation of street railways in the District of Columbia, and for other purposes, the fifth section of which provides that it shall be unlawful for any person or corporation to run or operate any vehicle propelled by steam or electricity, or other autovehicle, unless the same has first been registered in the office of the assessor of the District of Columbia in the name of the owner.

Upon registration the assessor shall give each vehicle a number by which it shall be known, the number to be placed upon the lamps and in the rear of the vehicle in such manner as the District Commissioners may prescribe by regulations. For the registration and number the owner of the vehicle must pay \$2 to the collector of taxes, and the vehicles shall not be run in the city at a greater rate of speed than twelve miles an hour. Any person or corporation failing to comply with or violating any of the requirements of this section will be liable to a fine of \$10 for each and every such offense.

A committee representing the National Capital Automobile Club, appointed by General Miles, the president, appeared last Wednesday before the District Commissioners, who recommended the legislation, and made a vigorous plea against the enactment of the section in question.

The matter was discussed at length between the committee and the board of commissioners, and at the close of the hearing the former was told that their statement would receive careful consideration at the hands of the board.

The chairman of the committee made an able plea against the obnoxious legislation, stating that there is no demand for the numbering of private vehicles driven by electricity or steam within the District of Columbia that would not apply with equal force to the placing of a number upon every other form of vehicle, or even the numbering of each citizen upon the back of his coat to distinguish him from every other citizen.

He pointed out that the operator of a steam vehicle is now taxed the sum of \$8 for his first year's operation and \$5 continuing yearly thereafter, and that this tax is more than he ought to bear. He said further that the obnoxious section of the bill singles out a class of individuals who are forging the way of progress and designates them as a class of suspected or probable criminals and is therefore humiliating, exasperating, and disgraceful. It is beneath the dignity of any man who strives to be a law-abiding citizen to be tagged or branded in the manner prescribed in the bill now before Congress.

The speaker laid special stress upon the fact that if the city of Washington, by congressional action or other police regulation, imposes upon the operators of motor vehicles this or similar requirement, it would set the example for

every other state, county, city, village or hamlet, or any or all of them, to impose similar requirements upon any automobile traveler through the country.

The club's committee submitted that the section in question ought not to become a law in any wise affecting motor vehicles used for private purposes, and informed the commissioners that it not only held itself in readiness to demonstrate the truth and correctness of the propositions set forth, but challenged the supporters of the obnoxious measure to show any good cause or sufficient reason for its enactment.

Since the introduction of the bill in question, the assessor has recommended that the license fee for automobiles and all passenger vehicles not using animals as motive power be raised to \$5, and has further recommended that automobiles used for the transportation of merchandise be taxed \$2 per annum.

The National Capital Automobile Club will fight to the end to prevent the imposition of the tax in question and is supported by many of the most influential people of the city, including a number of high officials, who are the owners and operators of automobiles and who do not relish the idea of having a gaudy number placed upon their machines.



#### LEGISLATION OLD AND NEW

The recent decision in New York state, that it is illegal to operate a steam vehicle on the roads there unless it is preceded by a runner to announce its approach, has led to some uneasiness on the part of all parties concerned, although it is generally believed that the law, if sustained by the higher courts, will be repealed as speedily as possible. Boston people have looked into the matter and find that there is no such law in Massachusetts. That no time may be lost in protecting the rights of operators of motor vehicles Timothy J. Campbell, an ex-congressman of New York, is preparing a bill to be presented to the legislature at an early date, giving to them the right to run on the roads and streets.

The question involved in the case was whether there had been a violation of the provisions of the highway law requiring users of vehicles propelled by steam and traveling in the highway to send a man at least an eighth of a mile ahead to warn approaching drivers. Of course the intent of this law, which was adopted about 1890, was to reach the owners of noisy traction engines, but, as it stands, the law can probably be construed to include the modern automobile. It would seem that a new law consistent with modern progress is badly needed.

The only other case on this question which has been tried in New York state resulted in an emphatic victory for the owner of the automobile. It was that of Fred Nason et al., respondents, vs. Jonathan B. West, appellant. On Oct. 18, 1898, the horse of the plaintiff was frightened by an automobile on a Rochester street and injured itself and a wagon to which it was attached. The municipal court awarded the owner of the horse \$42.95 damages, besides costs.

The case was appealed to the county court, where Judge Sutherland reversed the judgment, with a strong opinion.

"The horse," he wrote, "has no exclusive right to the road, and the mere fact that the horse takes fright at some vehicle run by new and improved methods and smashes things, does not give the injured party a cause of action. If one should find it desirable to go back to primitive methods and trek along a city street with four oxen and a wagon of the prairie schooner variety, it would possibly cause uneasiness in a horse unaccustomed to such sights, yet it could not, in my opinion, be actionable."



Assemblyman Smith, of New York state, has introduced a bill giving supervisors of all counties the right to regulate the speed of vehicles. The bill should be opposed for the reason that the speed regulations should be the same in all parts of the state instead of being left to the whims of men who are not competent to pass upon the matter.

Cincinnati has an ordinance which lim-



its the speed of automobiles to eight miles an hour and makes it compulsory to carry a lamp which can be seen 200 feet ahead as well as a bell or whistle which must be sounded at all street intersections.

The Mackinac Island (Mich.) park commission has adopted a resolution prohibiting the operation of automobiles in the park, on the ground that they are likely to frighten horses.

#### CLUB MEN TO VISIT FACTORIES

New York, Feb. 17.—The Automobile Club of America was to have visited the De Dion-Bouton Motorette Co.'s factory at Brooklyn next Saturday at the invitation of President Field, who is also chairman of the technical committee of the club. It has been decided, however, to make the visit the beginning of the season's club runs and the De Dion visit will be made on March 2, or the following Saturday.

It is also proposed to formally visit the leading automobile factories in this vicinity that the members may study the manufacture and construction of the various types of motor vehicles in the most thoroughly practical way. Already arrangements have been made to visit the Riker electric factory at Elizabethport and the Gasmobile plant at Marlon. The Mobile factory at Tarrytown, the American Electric Vehicle Co.'s plant at Hoboken and the Daimler shops at Steinway are all within easy reach and will doubtless be included in the club's inspection.

#### MOBILISTS OF 'FRISCO

The Automobile Club of California is becoming active and has decided, among other things, to attempt to secure greater privileges in Golden Gate Park than the commissioners are willing to accord them. The word rights should be substituted for privileges. It was suggested that the members apply, as individuals, for permits, but that plan was not regarded with favor and was voted down. The club has secured temporary quarters in the Parrott building. The first

club run will be held this month. Of the best known automobilists in San Francisco, Prince Poniatowski, T. Henshaw, P. F. Rockett, Dr. J. A. Bangs, Fred Ward, Dr. Anthony, Milton Buckley, Dr. Whitman, Dr. W. Mohauk, Byron Jackson, Dr. Clark, Leo Stearns, Mrs. L. L. Lily, Mrs. P. F. Rockett, and Mrs. Chas. C. Moore have steam carriages; Charles Fair, T. H. B. Varney, A. E. Brooke Ridley, William Edes, Dr. J. W. Ward, and Mrs. Webb have electric machines; L. D. Owens, W. L. Elliott, J. R. Wilkins, Dr. Tesse, S. Rogers, and Dr. T. E. Nicholson use the gasoline type.

W. L. Elliott, one of the expert drivers, built the first machine on the coast, and has done several thousand miles over all adjacent roads. Mrs. Charles C. Moore is a pioneer driver, and one of the most expert on the coast. Mrs. P. F. Rockett is an enthusiast, and an accomplished driver as well.

#### BUFFALO RUN IN SEPTEMBER

New York, Feb. 17.—It has been finally determined that the great run of the Automobile Club of America to Buffalo shall take place in September. This date was selected largely because it followed the international yacht races, and for this reason because many foreign yachtsmen, who are equally enthusiastic chauffeurs, will doubtless visit this country at that time and be greatly interested in this combined long run and endurance test, with a visit to the Pan American Exposition as a terminal. The Paris representative of the Electric Vehicle Co. writes that it is not at all improbable that Emperor William may come here to visit the yacht races. The emperor is an enthusiastic chauffeur as well, as his introduction of the automobile into the German army service and his offer of prizes for construction prove, and would not be likely to resist the temptation to take part in the run and visit the exposition.

It has been decided to combine the long proposed endurance test with the big run, which would give a far more satisfactory test than the series of prac-

tically local runs originally contemplated.

Chairman C. J. Field, of the technical committee, which has the endurance test in charge, had a number of leading makers at his house on Thursday evening to consult as to the classification of the various types of vehicles in the test.

#### FERRY BOAT BILL PROGRESSES

Washington, Feb. 14.—Representative Fitzgerald's bill to permit the transportation by steam vessels of motor vehicles using gasoline as a source of motive power, has passed the house of representatives, and is now awaiting action in the senate. It is the intention of Senator Platt, who introduced the original bill, to bring it to an early vote, and it is expected that that the bill will be in the hands of the president for signature within the next ten days.

#### SPORT WILL BOOM IN NORTHWEST

Minneapolis, Minn., Feb. 18.—There are a number of enthusiasts here who believe that Minneapolis will be unexcelled as an automobile center. Our grand roads and summer resorts, reached with ease, from the city, all lead to the belief that the motor vehicle will be extensively used.

"I don't believe I have missed a day since I became the possessor of my electric rig," said an enthusiast a few days ago, "and as to young Linton, it seems to me I have seen him tearing up Nicollet avenue about every time I have been down town. This is a great climate for automobiles, especially the electrics, and I feel sorry for my friends in New York and Chicago when I read of the blizzards and storms they have to contend with.

"There will be a great many new automobiles seen here next spring and summer, I don't know how many, but I've heard of a dozen at least just among my friends. I heard the other day that the local factory alone had taken orders for eight, all electrics.

"Some of those who already have automobiles will have to get another just

for luck. I heard E. J. Phelps say the other day that he would never be satisfied until he had six. He has a gasoline two-seat now, and in addition wants an electric brougham, an electric stanhope, an electric runabout, a gasoline one-seat and a steam automobile. I hope he gets the whole collection, as it will boom the sport greatly in this vicinity.

"There are not as many automobiles up this way as there are in Chicago," remarked the enthusiast with a smile, "for I see by this clipping that 377 licenses have been issued to operators in that town. Some of them have licenses for two kinds of power and a few are authorized to operate electric, steam and gasoline automobiles. We can't do quite that well up here, but we will be able to make a very presentable parade at the state fair next September. I rather think that the automobile parade will be the feature of the fair."

"About how many automobiles are owned in Minneapolis at present?" was asked by way of securing the list from one who was posted.

"Of the electrics there are those of Swan J. Turnblad, H. J. Clark and W. J. Murphy. Alf Pillsbury, George C. Christian, G. Case, H. Wilcox, Dr. Todd, Dr. C. E. Dutton and James Bell have steam automobiles. E. J. Phelps. Al Loring, C. E. Lewis, Mr. Blodgett and Frank Forman have gasoline. That is all I can think of now, but there may be others. These are all private rigs and of course there are several used in business. Steam and gasoline automobiles have been the favorite types up here thus far, but the coming summer will see a great increase in the electrics.

"The establishment of charging plants throughout the state will serve to popularize electricity. At present a charge is good for only about forty miles, and a trip around lake Minnetonka, for instance, could not very well be made. I am informed, however, that charging plants will be installed at Wayzata, Minnetonka Beach and Excelsior, and in the other direction at Lake Como and White Bear lake. I presume

that in time such plants will be installed at every country village where electricity is available, and in a short time one may set out in an electric with all the confidence that the owners of steam and gasoline vehicles have in their machines."

#### ASPHALT AUTO ROUTES PLANNED

New York, Feb. 17.—The New York Journal with commendable enterprise and its usual hustle is agitating the building of two great asphalt connections between the up-town residential section and the down-town business district, on either side of the city, for the convenience of users of automobiles and bicycles.

Two highways are provided for in this plan—one on the east side and one on the west side. Both routes are direct, and offer the widest streets available. At present they are paved with stone, with the exception of Eighth avenue and a portion of William street. The estimated cost of the improvement is \$237,000. Each route is a mile and three-quarters in length.

The work can be hastened because it is only repaving, and does not have to go before the board of estimate or the board of aldermen. As the cost will be assessed on the general fund of the city, the approval of the board of public improvements is all that is needed under the charter.

The wheelmen are naturally enthusiastic over the project, and the Automobile Club of America has endorsed it in the following resolution:

"Resolved, That the Automobile Club of America endorse the plan for two asphalt routes for automobiles and bicycles, as planned by the New York Journal, one on either side of the city in the lower part of the Island of Manhat-

tan, so that owners of all vehicles may better reach the down-town business section of the city.

"Resolved, That copies of this resolution be sent to Robert A. Van Wyck, Mayor of New York City; Thomas Woods, president of the board of aldermen, and James P. Keating, commissioner of highways for the City of New York."

A twenty-five mile automobile race, for \$5,000, is one of the attractions announced for the July meeting of the Gentlemen's Driving Club, at Monmouth Park, N. J. A five mile race is also announced.

The Automobile Club of New Bedford, Mass., has been organized and the following officers elected: R. S. Taber, president; E. A. Wheaton, vice president; E. G. Watson, secretary; E. W. Russell, treasurer; Dr. A. L. Shockley, captain.

A new cap badge, very tasteful in design, has been adopted by the Long Island Club. It is gold-plated and about three-quarters of an inch in diameter. Upon the face are the initials of the club, and above and beneath are scrolls, the former almost semicircling the badge, bearing the club's name. The first batch of about a dozen have been furnished to the club members.

A letter from Miami, Fla., announces that an automobile livery has been established there. "The automobile is a mystery to the Seminole Indians," says the writer. "The squaws are rather afraid of it, but some of the braves are very inquisitive over its workings. One of these with a yell jumped from the flying vehicle when taking a ride, rolling into a sand heap by the wayside. He jumped up and hid in the woods."

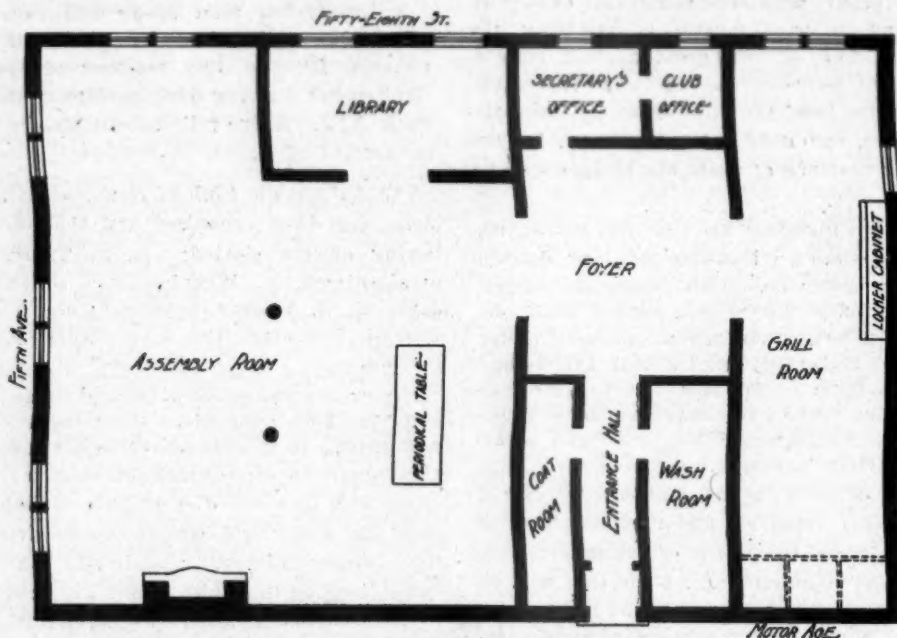
Representative of all branches of the industry, the Chicago show will furnish dealers with an unparalleled opportunity to learn.

## A. C. OF A. OPENS ITS NEW QUARTERS

**N**EW YORK, Feb. 17.—The pioneer club of American chauffeurs is now installed in a new home commensurate in its elegance and conveniences with its standing as our rec-

town trolleys. Several more storage stations are in contemplation in the circuit, so that the storage problem seems fairly well solved for the present.

The club rooms face the Central Park



PLAN OF THE CLUB ROOMS OF THE A. C. OF A.

ognized representative national organization.

Yesterday the Automobile Club of America took formal possession of its suite of club rooms occupying the entire second floor of the imposing Plaza Bank building on the southwest corner of Fifth avenue and 58th street. In the afternoon there was a reception to the press and in the evening the members enjoyed a house warming.

For convenience of location and beauty of outlook no better site could have been chosen. There has been no attempt to provide storage quarters, but the commodious Winton depot is but three blocks away on East Fifty-eighth street and the Sixty-sixth street automobile station is easy of access by the cross-

Plaza and from the broad windows of the great assembly room the members can look across it to the Park entrance and see the constantly shifting panorama of the vehicles of the two ages, with the horseless era already almost in the greater evidence. Noting from the club windows the large number of automobiles constantly in view Mr. Hill remarked that some day he proposed to set one of the servants counting them for a day so as to give one some idea of the prevalence of the motor vehicle in the pleasure convention of New York.

President Shattuck, Vice-President Bostwick, Secretary Ford, Gen. Smith, Mr. Hill, Mr. Chamberlin and several other prominent members were on hand to meet the newspaper men, show them



through the rooms and extend to them the club's hospitality.

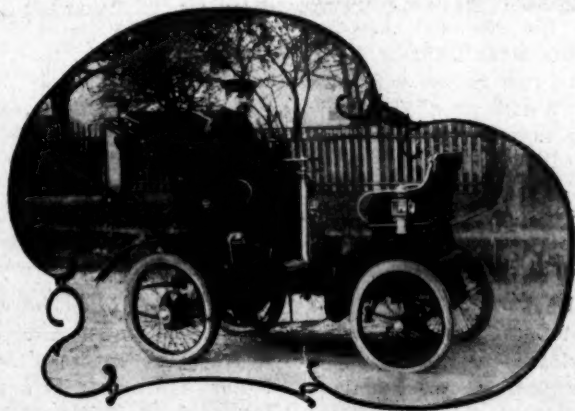
The rooms on the second floor are reached by an elevator. One enters a broad foyer combining office and coat room with wash room adjoining. The walls are in gray with white woodwork trimmings. To the right is the Dutch grill room, which is destined to be the most popular apartment in the club. It is here that the yarn spinners will gather, and the motive power debaters will argue. The woodwork, the locker cabinet, the ceiling beams and the chairs and tables are in black. The ceiling between the beams is dark red and the walls are papered in figured blue and white. Facing the entrance is a big cabinet of lockers, each large enough to hold a private bottle or two; for there is no general bar and each member dispenses his own hospitality in a delightfully sociable and informal way.

At the east end of the room is a big grill bright with brass kettles and utensils. Here the members of expert culinary proclivities will show how neatly they can broil a bone or build a rare-bit. A row of steins on a shelf extending

across the locker cabinet would indicate that dark beer or old ale might be conveniently concealed somewhere near at hand. On the walls are hunting pictures, the only reminder of the effete horse in the club, and racks of long-stemmed pipes, which will probably have quite a pull on smoker nights.

As one enters the assembly room extending across the entire Fifth avenue front, and having also a broad window on the Fifty-eighth street corner, looking out into the Plaza to the right is the cosy little library and committee room in dark green with a writing table in the center and a book-case at one end. The latter contains several hundred volumes of automobile literature and is the most complete motor vehicle library in America.

The general or assembly room is a spacious and imposing apartment, papered, carpeted and furnished in dark red. Easy chairs and lounges abound in profusion and on the walls are a brave array of automobile pictures uniformly framed in black. A long table contains all the current foreign and American motor vehicle periodicals.



C. J. Field in a DeDion Motorette

# THE MOTOR AGE

## News of the Industry

**K**EENE, N. H., Feb. 16. — The Steamobile Co. of America has taken formal possession of the factory at which Trinity bicycles were formerly made. This factory was equipped by Frank T. Fowler, of Chicago, to make bicycles, about four years ago, and a few of the attaches of the old concern remain with the new owners, notably Reynold Janney, inventor of the Janney pedal, and Stillman G. Whitaker.

The capital of the new company, which is organized under the laws of Delaware, is \$500,000, of which \$150,000 has been paid in, and at its head is a western man in the person of E. P. Wells, formerly of Jamestown, N. D., and who now, in addition to the presidency of the Steamobile company, holds the position of secretary of the National Association of Automobile Manufacturers.

Associated with him in the work are Frank Taylor, Wilmington, Del., for twenty-five years treasurer and manager of the Vulcanized Fibre Co., vice president; Francis C. Faulkner, Keene, temporary treasurer; Stuart W. Wells, Keene, temporary secretary; Reynold Janney, Keene, consulting engineer; K. A. Juthe, until recently manager of the Baldwin Automobile Co. of Connellsville, Pa., shop superintendent; S. W. Fay, recently of Chicopee, Mass., draughtsman; E. H. McClintock, assistant draftsman.

Mr. Wells has spent a great part of his time, for the last few months, at the temporary New York offices of the company on Fifth avenue, but will be found at Keene hereafter, having com-

pleted the necessary preliminary work and being now prepared to produce vehicles.

The business of the Steamobile company will be conducted with that conservatism which is so desirable and yet so rare in the automobile business.

"We are a comparatively small concern," says Mr. Wells, "with modest ambition and with a fixed determination to keep within our class and not get reckless. We are building, I believe I know, the best machine made and our ambition is to keep our product at the front and rely on near by trade to take our product until our success shall be so assured, and the manufacture of automobiles so standardized, that we are willing to branch out into broader fields. With all the wrecks strewn about us as a warning, no one will wonder at our caution."

### HOOSIER DOINGS AND SAYINGS

Indianapolis, Ind., Feb. 16.—"In my opinion an automobile exhibition should be held in February or March, and for that reason, I believe the Chicago automobile exhibition will be an unqualified success."

L. S. Dow, president of the National Automobile & Electric Co., made the above statement to a representative of Motor Age a few days ago. "By holding a show in March," continued Mr. Dow, "the work of the exhibitors will have a direct effect with the trade. The work done at a show conducted in the fall loses its effect before spring appears. Persons who in the fall contemplate the purchase of automobiles are

apt to change their minds soon afterward, while those visiting shows in March are apt to purchase outright. They know that the vehicles on exhibition are the latest and have features which cannot be improved upon."

Mr. Dow said that he anticipated a big attendance at the Chicago show; that, it would no doubt prove to be among the best, if not the best, ever held.

The Motor Age representative was shown through the large plant of the concern, and it is safe to say that it can be included among the largest of its kind in the country. The power house is 55 by 50 feet, while the main building is 325 feet by 70 feet, two stories high and built of stone and brick. The factory is entirely new and modern, constructed especially for the manufacture of automobiles. It is equipped with every convenience and facility for accurate and economical work. Every part, except the body and storage batteries, is made at the factory. The bodies are made under special contract and the same can be said of the storage batteries, a large shipment of which was received while the Motor Age man was at the plant.

The running gears for National vehicles are made of cold drawn, seamless steel tubing brazed into steel joints, cross tied and pivoted by a vertical fifth wheel to the front axle. Wood wheels with solid rubber tires are regularly used and are fitted with ball-bearing, thoroughly dust-proof axles. The starting and speed regulation is accomplished by means of a lever at the left side of the seat which gives five speeds forward and three backward, the reverse action being obtained by pressing a button in the top of the starting lever. The steering is by a lever placed at the right hand, and requires practically no exertion. Vehicles are supplied with brakes, electric lights, gongs, combination volt and ammeters and odometers.

The National Automobile & Electric Co.'s line will consist of no less than eight models. The Stanhope, style F, which is a beauty, will sell for \$1,750,

while the New York trap, style E, will sell for \$100 loss. The road wagon, with top, is listed at \$1,250, the brake at \$1,600, the park trap at \$1,200, road wagon at \$1,200, the combination, including top or rear seat at \$1,500, and the runabout at \$900. The latter is a light, practical vehicle and is characterized by the absence of a running gear frame, special distance springs being substituted for the usual connecting perch. The body of the vehicle is carried on an X spring in front and on double half-elliptic springs in the rear. The latter are attached to the body by a rocker plate instead of being bolted in the usual manner, by which method great flexibility is obtained.



Sears Bros., 803-805 Massachusetts avenue, who have been in the bicycle business for many years, will probable enter the automobile business. The concern has just completed a steam automobile which is to be tested next week and if found satisfactory, arrangements will be made to build at least one each week. Charles W. Sears will be able to say whether or not he will enter the business on a large scale in a few weeks. "I am under the impression," said he, "that the vehicle just completed will be too heavy and unless we can improve upon it, we will not go into the business. The vehicle weighs almost 1,000 pounds. It can attain a speed of about fifteen miles an hour which, in my estimation is not enough." The running gear of the machine was made by the Deibel-Eppler Manufacturing Co., while Sears Bros. made the motor.

Among the visitors here during the week were Lew Keck, of the Badger Brass Co., and Harry Cody, of Morgan & Wright. Both report business as being good.

During the early part of the week, A. L. Garford, M. B. Johnson and W. L. Colt, of the Automobile & Cycle Parts Co., which was recently organized at Cleveland, were in the city, the guests of L. M. Wainwright, manager of the chain factory. Mr. Wainwright said that



his visitors were here for the purpose of inspecting the factory and from all accounts they were perfectly satisfied with the way matters were conducted.

A representative of the E. R. Thomas Motor Co. is expected here next week to complete arrangements for a Thomas agency. The Geo. C. Detch Wheel Co. is anxious to secure the agency and it is probable they will be successful.

Glen Rock, Pa., claims that it will have an automobile factory in the spring and that it is to be erected by W. C. Kohler, of Lancaster, Pa. It is to be six stories high.

#### AUTO-CYCLE PARTS COMPANY

The anti-trust papers are making an outcry about the recent organization of the Automobile & Cycle Parts Co., of Cleveland, without having investigated the status of the affair. Strange to say, the papers in some of the towns in which the allied factories are located do not seem to have been aware of the fact that they were already the property of the American Bicycle Co., and were sold by that \$40,000,000 concern to the more modestly capitalized new one.

#### USED BY VANDERBILT

C. J. Bailey, of C. J. Bailey & Co., of Boston, has just returned from a western trip in the interest of his well known "won't-slip" tire. Mr. Bailey says many vehicle manufacturers have made arrangements to fit his tire as a part of the regular equipment of their wagons. Among the many testimonials Mr. Bailey has received is one from W. K. Vanderbilt, Jr.

#### NEW AUTO MARKET OPEN

There has recently been established in Pointe à Pitre, Guadeloupe, West Indies, an enterprise known as the American Exchange, which has for its object the introduction of various lines of American manufactures not known in that market, and the substitution of American for other foreign goods in lines al-

ready established. One of the first orders received by the exchange was for an automobile. A French machine was ordered, with option to purchase an American one, if quality and price are suitable. What is wanted is an automobile for two persons, operated by gasoline or naphtha, light weight and a good hill climber. The vehicle must have a buggy top, as Guadeloupe is a hot, sunny country. If this order can be placed in the United States, all future orders will also come here. The American consul at the above mentioned place has suggested that it would be well for manufacturers who are interested to send to the exchange full illustrated catalogues, giving prices, weights, dimensions, discounts, and other essential information.

#### NEW MOBILE BRANCH

That the people of Boston are considerably interested in steam wagons is evidenced by the appearance of the local branch of the Mobile company at 346 Boylston street, where at all times of the day there are many prospective buyers examining the Mobiles shown and getting points on the manipulation of a steam automobile. Harry Fordick is manager of the branch and he also covers New England for his company. He has established a number of agencies in nearby cities and is enthusiastic over the prospects for spring trade.

#### BARKMAN MAKING MOTORS

The Bridgeport Machine & Motor Co., which builds Bridgeport motors, contemplates entering the field of bicycle motor building in addition to its gas and gasoline engines for marine and stationary purposes. The company also makes a specialty of marine hardware, tools, moulds, dies, presses, general machine models and experimental work of every description, and manufactures power plants for all stationary purposes. The Bridgeport company issues a clever booklet entitled, "Motor Facts, or the Story of the Bridgeport, a Motor that Moves." The builder of the little



booklet shows considerable ingenuity in bringing out facts for those that want to buy motors.

Two bicycle men are at the head of this company. One of them is A. B. Barkman, for twenty years a leading man with Spaldings, and who is thoroughly familiar with every department of the sporting goods business, so that the Bridgeport Machine & Motor Co.'s pleasure launches will be equal to the best.

A departure in the supply line which will interest many people is that of launch fittings. These are listed in the company's catalogue with the price of each part. The Bridgeport reversible gear, applicable to motors, marine or stationary, is also listed.

Mr. Barkman believes (as does Mr. Brautagan, his partner), that the bicycle dealer will in future sell motors of all kinds and will also sell boats if conveniently situated. The Bridgeport Machine & Motor Co. will be glad to send "Motor Facts" to any address.

#### MECHANICALLY JOINTED FRAMES

Among the products of the National Frame & Metal Co., recently organized at Syracuse with a capital of \$60,000, will be automobile frames. The company has leased buildings at 423 and 425 Fulton street and has about 22,000 square feet of floor space besides a foundry in the rear.

The feature of the product will be a patented method of forming the joints, invented by E. D. Clark. The inventor will use a special metal for which great claims are made.

The officers of the company are: John Dunn, Jr., president; John S. Kaufman, vice president, and Charles A. Fox, secretary and treasurer.

#### DEVELOPING AUTO FIRE ENGINES

Eastern houses have so far had a monopoly in matters connected with the application of motors to fire engines and other vehicles used in the public service, but that their monopoly is about to end seems to be proved by the efforts

now being made by the Racine Fire Engine & Motor Co., of Racine, Wis.

The mechanical men of this concern have been devoting a great deal of time, lately, to an investigation of the best means of adapting motor power to fire engines and other vehicles used in the fire department. Numerous experiments have been made in the manufacture of trucks and wagons to which to apply motors of from twenty-five to forty horsepower. The standard designs of vehicles will be followed as nearly as possible. The company has decided to open a large plant in the vicinity of Lakeside and it will be devoted exclusively to the development of the motor industry.

#### NOVEL TWO WHEELER

The hub motor for electric vehicles has, in one of its forms, been applied to a decided departure in the way of electric automobiles. The new machine is the invention of A. S. Holson, of Chicago, who is said to have constructed a two wheeler with its wheels side by side and about six feet in diameter. The storage battery box hangs from the axle and its weight, by bringing the center of gravity low down, allows the seat to be placed on top of the axle without endangering the position of the passenger. It is averred that the Hellos-Upton company is interested in the vehicle.

#### BOSTON SHOW ABANDONED

After a brief but ineffectual attempt to interest automobile manufacturers, the gentlemen who attempted to promote a show at Boston have given up in despair. Like the gentlemen who ran the late show at Philadelphia, but who scored a wonderful success, they had no direct connection with the industry, but had managed to secure the co-operation of one of Boston's automobile clubs.

A letter just issued to the trade indicates that the enforced retirement has been a hard blow to the promoters. "The subscribers to the proposed Boston automobile show," it says, "having caused to be made a complete canvass of the automobile trade, have decided to go no

further with their plans on account of not having received the co-operation from the manufacturers which they had a right to expect. The gentlemen most actively connected with the undertaking feel that the treatment which they have received from the representative manufacturers was not such as would lead to an altogether successful exhibition, and rather than fall in that regard they deem it better to stop now rather than have an indifferent show."

The trouble with the Boston show was that it was announced too late and was not well advertised. The east, too, has been surfeited with exhibitions. The retirement leaves Chicago as the only remaining show of the season.

#### WHEELS OF SEAMLESS TUBING

Emmet McConville, manager of the United States Motor Co., of Pittsburg, has invented and the American Tubular Wheel Co. will manufacture and market a wheel for automobiles, to be made of seamless tubing. The company has been incorporated under Delaware laws with a capital of \$200,000. The incorporators are: Mr. McConville, James H. Foster of Wilmington, Del.; Thomas Cochran of Pittsburg, and George W. Holt of New York. The wheels will be made at the factory of the United States Motor Co., Penn. avenue, Pittsburg.

#### THE LOCOMOBILE'S CHANGE

The last of the Locomobile plant, formerly operated at Worcester, Mass., was loaded on the cars and shipped to Bridgeport last week. Locomobiles have heretofore been made at three plants, located at Bridgeport, Worcester and Westboro. This was necessarily an expensive operation, but the plan was adopted to save time in looking up a factory large enough to accommodate all the branches of the business.

It took months to secure a place where all the machinery and all other apparatus could be installed, but now that this has been done, the company's facilities will be greatly improved. The factory is within easy distance of New York. The Worcester plant was devoted prin-

cipally to the manufacture of engines, tanks and nuts, and turned out these parts for about twenty vehicles a day. This work gave employment to about 225 men during the busy season. Many of the employees went with the plant to Bridgeport.

#### GAINS FAVOR RAPIDLY

On January 19—a month ago—the Manufacturers' association sent circulars to its members asking who would and who would not exhibit at the Chicago show. Of the fifty members, eighteen replied and a dozen said they would not be present. Thirty days has effected a change, however. Some of the twelve will show. They have become convinced that no important manufacturer can afford to neglect Chicago. The management does not expect to secure the attendance of all of them, but has forwarded to all a cordial invitation to take part in the exhibition. It is noticeable that a number of important members, including several who have taken space, did not reply to the circular.

#### DUSENBURY CONTROLS FACTORIES

New York, Feb. 16.—C. Coles Dusenbury & Son, 396 Broadway, this city, bid fair to become as prominent in the automobile industry as they are in the carriage trade. This firm was established in 1849 and besides being a large importer controls the entire carriage goods product of four whip cord, two carpet and six cloth mills and a silk mill. In all these lines they represent goods of every grade though they are best known for the high class goods they supply the Brewsters and other leaders in the carriage trade. One of the members of the firm makes biennial visits to Europe in search of new patterns and novelties and for the purchase of the goat skins and other material they import. They have already gained a strong foothold among leading motor vehicle makers.

The Maryland Automobile Co., of Cumberland, Md., has just sold a foundry and a number of lots for \$7,000. This

property is a part of a lot of real estate recently purchased by the company.

William H. Bradford, of Springfield, Mass., has fitted up a small machine-shop and employed two machinists, especially to build two automobiles of his own design.

The Clark Bros. Co., of Vicksburg, Mich., has added new machinery to its plant for the purpose of manufacturing engines and speed regulating devices for automobiles.

Essex & Nicol, 246 Jefferson ave., Detroit, agents for the Foster Vehicle, are on the lookout for a reliable line of electric automobiles, and are in position to take all of the exclusive agency for Michigan.

The Motor Mfg. Co., of Eureka, Cal., recently organized to buy, sell and operate motor vehicles, has leased a small plant and has made arrangements for the installation of machinery. The company will conduct a general machine-shop in addition to its automobile business.

R. W. Whipple, who has the Locomobile and Electric Vehicle Cos.' agencies at Binghamton, N. Y., seems to be a wide-awake individual. He is negotiating with Willsey & Bennett, proprietors of one of the principal hotels, for a 'bus to carry sixteen persons, and which will cost them about \$4,000.

The Cincinnati Automobile Co. has been incorporated with a capital of \$25,000. It is to operate an automobile factory and the gentlemen connected with the enterprise claim that they will be running and employing fifty men before the first week in March. Emmet P. Gray is the mechanical man of the concern.

The Triumph Motor Vehicle Co., of Chicago, whose announcement appeared in the papers some time ago, in applying for space at the Chicago show, says that it has been making haste slowly and has spent much time and money in perfecting its machines before going into the market, but that it will be ready for the spring trade. The company expects to show at least three vehicles, steam

and electric. It is understood the factory will be located at Kankakee, Ill.

Minneapolis boasts over thirty-five automobiles of various types, with steam machines in the lead numerically.

Mr. Tucker, manager of the Locomobile Company's Chicago branch, was called hastily to New York last week. Mr. Davis, president of the company, who has been abroad for the last three or four weeks, returned to his office about the same time.

The Hopkins-Sears Co. and L. J. Wells, of Des Moines, Ia., are engaged in a controversy over the respective merits of the Milwaukee Automobile Co.'s steam wagon and the Locomobile, for which they are agents. They are trying to arrange a race to take place at the mile track near the city.

Two Eastern makers of steam vehicles will shortly announce that representation has been secured in Chicago. The Chicago man at the head of the enterprise is a board of trade man and believes he will secure many customers among his friends on the board. At least one of the concerns will exhibit at the Chicago show.

J. L. Greenleaf, once with the Indiana Bicycle Co. and later manager of the Patee cycle store in Indianapolis, is now with the Patee Bicycle Co., which recently moved its factory from Peoria to Indianapolis, and will take a hand in the introduction of the company's motor bicycle. The samples are out and the manufacture of machines for the market will commence next week. The Patee Company will exhibit at the Chicago show.

Many towns have before them for consideration propositions from manufacturers of automobiles who want inducements offered to them to locate factories. One of these recently turned down a request for \$250,000 without formality and without worrying to notify the applicant. Hamilton, Ont., has an application from a concern known as the Steam Carriage Co. which asks for \$10,000. The people of the town will vote on the subject in a few days.



## REMINGTON COMPANY TO LOCATE AT UTICA

**U**TICA appears to have secured the Remington Automobile Co. It has been expected for a long time that this would happen; indeed, the manager has been so sure of it that he has declined to entertain other propositions for the last two months, but only last week were the negotiations between the company and the Utica Chamber of Commerce completed to such an extent as to place the question practically beyond question.

The Remington Automobile & Motor Co. was practically organized about a year ago and was incorporated in August. Its capital stock is \$250,000. No sooner had the preliminaries been settled than James S. Holmes, Jr., who had for a long time been manager of the Remington Bicycle Co., was offered the general management. He accepted at once and the company commenced the manufacture of motors and carriages at the Remington works.

The company desired to locate outside of Ilion, where the typewriter and other Remington factories are located, but within easy distance, and a number of proposals were submitted by towns which desired to secure the plant. Of these Utica seemed to be the most desirable. Negotiations were carried on between the company and the Chamber of Commerce, and the latter, having appointed a committee to investigate, has now acted upon its report and issued a circular to all of its members, advising them to apply for stock in the company.

The principal condition on which the company agrees to move to Utica is that the people there shall subscribe to \$30,000 worth of the stock. Other advantages will be gained, however, for an offer of free land has already been made.

It is intended to erect a factory, 180x60 feet, of brick and iron, and to install therein the plant now in use at Ilion and about \$5,000 worth of machinery in addition. No doubt is entertained about the subscription to the capital stock, the report made by the Chamber of Commerce being all that could have been asked by the most exacting.

The output of the factory will be about four machines a day at the start. One of the advantages Utica offers is the location there of the Willoughby-Owen company, which makes bodies, and the Weston-Mott company, which makes wheels.

The Remington company has been proceeding with care in the preparation of its early machines, of which seven are now in operation. The motor was designed by William A. Schmidt, one of the shop superintendents with the Remington typewriter company.

James S. Holmes, Jr., is another sample of the pushing young men who, after a long career in the cycle trade, have gone into the automobile business with a lot of good experience behind them. He commenced his commercial career in the jewelry business at Newark, N. J., then went to the Waltham Mfg. Co. as manager of sales, and wound up his career in the cycle trade as manager of the Remington business. He is known widely in the trade with which he has been connected, as a clean-cut, shrewd business man who will make a success of anything he may undertake and who will not be likely to attempt anything until he is confident of his ability to make it a success.

The Remington will be shown for the first time at the Chicago show, March 23 to 30.

**The trade, the public and the press favor the Chicago automobile exhibition to be held March 23 to 30 in the new Coliseum.**



## ANOTHER BIG PATENT SALE PENDING

**N**EW YORK, Feb. 16.—L. M. Dietrich, inventor of the Dietrich variable speed gear, about which so much has been written in the automobile, bicycle and other technical journals during the past few months, in a hasty chat with the Motor Age man this morning, said that he had just concluded a preliminary verbal agreement with the Electric Vehicle Co., whereby he is to sell to that company the control of the gear for America.

As a piece of news this is interesting and important. On the face of it the matter represents the sale of a valuable patent to a strong concern. But there is also another phase of the situation which is not only notable, but possessed of the possibility of an undercurrent object that may affect every maker of gasoline vehicles.

The Electric Vehicle Co. owns the Seldon master patent for hydro-carbon vehicles, now in the courts. The Dietrich gear is one of the most notable inventions of a practical nature which possesses qualities that, incorporated in a hydro-carbon driven vehicle, probably render the vehicle inviolable of the claims of the Seldon patent. If the Electric Vehicle Co. owns an automobile master patent to try to invalidate which requires long and expensive court proceedings of doubtful outcome, and buys another patent for one of the most suitable methods of building vehicles which do not infringe the master patent, then is not the latter purchase an exceedingly important deal?

It is well known that the claims of the much discussed Seldon patent are very broad; that they specify particularly and without limitation the use of a hydro-carbon engine of the compression type to propel a road vehicle; that this power element is claimed in combination with a clutch or disconnecting device between the motor shaft and the drive wheel shaft. The first claim of the Sel-

don Patent, which is the most comprehensive claim relating to the driving mechanism, is as follows:

"The combination with a road-locomotive, provided with suitable running gear including a propelling wheel and steering mechanism, of a liquid hydro-carbon gas-engine of the compression type, comprising one or more power cylinders, a suitable liquid-fuel receptacle, a power shaft connected with and arranged to run faster than the propelling wheel, an intermediate clutch or disconnecting device and a suitable carriage body adapted to the conveyance of persons or goods, substantially as described."

The Dietrich patent does not provide means for obviating the Seldon patent in toto. But it does provide a variable speed gear with which, if interposed between the motor and driving wheels of a carriage, the ratio of speeds can be reduced, by the movement of a lever, to zero. When this is done the motor may continue to run while the vehicle stands still or may be started without moving the vehicle, and all of the purposes for which a clutch is commonly employed may be accomplished without a clutch and without resorting to a disconnecting device.

Thus the purchase of the Dietrich patent, said on the authority of Mr. Dietrich to have been to all effects made by the Electric Vehicle Co., renders the latter company the possessor of a master patent and of the most noteworthy patent for a device which limits the scope of the master patent.

There are, however, two points worthy of consideration in the matter which reflect with considerable pertinence upon the situation.

First, it is possible that the courts may decide, that a variable speed device by which the power of the motor may be made inoperative, or vice versa, is to all purposes a disconnecting device or clutch

according to the doctrine of mechanical equivalents. Granting this possibility to be sustained, it is still feasible, with such a gear as the Dietrich, to drive the wheels so slowly without actually stopping them, that there would be no disconnection or inoperation of power in reality, though during such a period of slow operation the vehicle would be practically at a standstill. In either instance, the former by virtue of the possibility of infringement of the master patent by the speed varying mechanism employed in connection with the other elements of the Seldon patent, and the latter by virtue of the ownership by one party of both patents, the Electric Vehicle Co. is apparently in a good situation to control the field.

Secondly, the Dietrich gear's objects may possibly be accomplished in an equally efficient manner by other mechanisms already constructed or soon, as a result of necessity, to be evolved. In this case the situation would result in the ownership by the Electric Vehicle Co. of the master patent and one method of building vehicles without infringing it, and in other parties owning another or other patents for the same purpose as the second patent under the control of the Electric Vehicle Co.

Thus the matter presents several fine points in mechanics and patent law which are not at first apparent upon the mere announcement by Mr. Dietrich that he has sold his American rights to the Electric Vehicle Co.

#### POSSIBLE RESULTS OF THE SELDEN AND DIETRICH PATENTS

No one knows what to-morrow holds in store, especially in the patent business; but when an unsolved problem is before the public, numerous conjectures as to the probable outcome may be easily made. Thus in the case of the Seldon patent on hydro-carbon vehicles, now pending in the courts, and the coupling with it in ownership of the Dietrich speed changing gear, it is not difficult to point out results which might arise from the constantly changing and accruing complications of the case. Below are a few which first come to mind:

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The Seldon patent may be sustained and makers of gasoline vehicles be compelled to take out licenses for manufacture under its claims.

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The patent may be made worthless. This would bring the entire matter to an abrupt end.

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If devices, such as the Dietrich gear, which when interposed between engine and traction wheel, effect the purpose of a clutch or disconnecting means without actually disconnecting the motor, are judged to be mechanical equivalents of clutch mechanism for the same purpose,

the ownership of the Dietrich patent is not of importance relative to the Seldon patent. In this case the scope and influence of the Seldon patent would be enhanced.

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If the Seldon patent is eventually sustained and such devices as the Dietrich gear are not placed under legal ban as being equivalents to clutches, it is probable that there would be increased activity in the invention of non-disconnecting transmission gears which allow the vehicle to remain at a standstill without stopping the motor.

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It may further be possible that the threshing out of the various problems involved in the matter, the counteracting influence upon mechanical minds, the rapid general progress of the industry, the evolution of new types, the creation of improved engines and the avidity of the trade to grasp new ideas would work along side by side, and result in the common end of the perfected hydro-carbon motor whose speed may be regulated primarily the same as that of a steam engine and whose application to vehicle drive does not require secondary and supplementary regulation devices.

## THE VERY FIRST AUTOMOBILE

**A**S THE motor vehicle industry has advanced to a stage which induces general interest, discussion and comment on the part of the public as well as the tradesmen and initiated laity, much interest is shown on all sides in nearly every phase of the automobile situation. Thus it is of course natural that not a few persons revel in research intended to throw more light upon the subject of the original self-propelled carriage. Many discoveries have been made which are of more than passing interest, but by far the most notable effort in this line of research is that recently made public by a writer in the Cincinnati Enquirer. The vehicle presented for consideration as the father of all automobiles so far antedates all other ancient autos, and its authenticity is proven by such good and world-wide acknowledged authority that the story of its debut to the present public eye is worth repeating:

“The progress of science was the general topic before the Old Bucks’ Club at its last meeting,” said General von Niemand, while lunching at the cafe.

“We had an excellent paper by Mr. John Kilgour on ‘Urban and Suburban Methods of Transportation as Compared With Past Historic Ages.’ Mr. Kilgour began his paper with a quotation from the Book of Proverbs—‘There is no new thing under the sun.’

“It was almost inspiring to hear the able manner in which the speaker handled the subject. He said that the invention of the self-moving vehicle was neither new nor modern; that such wagons or chariots were in use before the Book of Proverbs had been written. He called attention to the one in which the Prophet Elijah took his departure when he left his cloak with Elisha. He insisted that motive power was gasoline

or compressed gas, as it was described as a ‘fiery chariot,’ and as an evidence of this he pointed out that Elijah, not needing his cloak any longer, gave it to Elisha, who had walked down to the station to see him off. The vehicle was heated even better than a modern street car, in which the passenger cannot take off his overcoat on account of open ventilators and doors.”




“This paper precipitated a heated debate among the biblical students who were present,” continued the General. “The first return fire came from General Hickenlooper, who insisted that it was a gas machine in which the heat, light and power all came from gas. He produced statistics to prove his claims and showed that gas was cheaper than any other article used for the same purposes, and that the Hebrews, being careful business people, would not pay two prices for electricity when they could get the same results for one price.

“Captain George N. Stone, of the Telephone company, disagreed with General Hickenlooper and said that he had made an accidental discovery the other night which proved the double efficiency of electricity. He said that they have a storage battery in the Telephone Exchange which is held in reserve in case of accident to their other sources of electrical supply. The other night—about 1 a. m.—they had to connect the storage battery because of a breakdown. In less than five minutes the calls for connections began to pour in and the operators were surprised to hear everybody talking and talking at the same time; calls came in by the hundred, and the night operators in despair sent out for help. The superintendent came down with the electrical experts and finally decided to shut off the storage battery. When that was done the calls and talk



## Chicago Automobile Exhibition

A Show at  
the Right Time  
for All the  
People 

...

Designed to attract, instruct and entertain  
dealers and other people who are ready to buy

...

Has already attracted many wide-awake mak-  
ers and will attract many others

...

For facts about reduced railroad rates see first  
page of this issue and the Weekly Bulletin,  
which will be sent to any address on applica-  
tion

...

**Coliseum, Chicago, March 23-30**



# The Last and Best Show of the Season

<b>MOBILE</b> New York	<b>NATIONAL ELECTRIC</b> Indianapolis	<b>WOODS</b> Chicago
<b>REMINGTON</b> Ilion, N. Y.	<b>BALDWIN</b> Connellsville, Pa.	
<b>THOMAS</b> Buffalo	<b>FANNING</b> Chicago	<b>MILWAUKEE</b> Milwaukee
<b>PATEE</b> Indianapolis	<b>CENTURY</b> Syracuse	
<b>OLDS</b> Detroit	<b>SCOTT</b> St. Louis	<b>TEMPLE</b> Chicago
<b>HEWITT-LINDSTROM</b> Chicago	<b>MUNGER</b> New Brunswick, N. J.	
<b>ACME</b> St. Louis	<b>GOODRICH</b> Akron, O.	<b>MUELLER</b> Milwaukee
<b>DIAMOND</b> Akron, O.	<b>GRAY &amp; DAVIS</b> Amesbury, Mass.	
<b>BORBEIN</b> St. Louis	<b>MOFFETT</b> Chicago	<b>PENN. AUTO.</b> Reading, Pa.
<b>STEAM VEH. SUPPLY</b> Reading, Pa.	<b>BADGER BRASS</b> Kenosha, Wis.	
<b>GARLAND</b> Chicago	<b>DASEY</b> Chicago	
<b>KELLY HANDLE BAR</b> Cleveland		

## Some Of the Exhibitors

Who  
Had  
Taken  
Space  
Up to  
Monday  
Last

Write Motor Age, Chicago, for Other Details

ceased, but when connected again the whole thing rushed as before. They then knew that the old battery had stored up all the second-hand electricity which the telephone company had used ever since the new switchboard was put in and had registered all the talk which had passed over the wires in all that time. It had acted as a grand complex phonograph, mixing the calls and conversations in an unintelligible mass of words, and when the connections were made the talk all rushed out.

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"He said there have been complaints made about crossed lines and all that sort of thing and that the linemen had gone nearly crazy in trying to locate them, but had failed, because the trouble arose from the induction to and from that old storage battery. So they cut out all of the connections save those to the houses of the best natured subscribers and let the old thing empty itself.

"Mr. Ed Stallo, who was present on the proxy of Mr. Alexander McDonald, insisted that Captain Stone was out of order, in that he was not talking on the subject before the club, to which the captain retorted that he was in a reminiscent mood, and had a right to resort to such arguments as were in his mind. Mr. Stallo went on and said that he could not sit by and hear the Standard Oil Company put in an improper light before the club through indirect attacks on the use of gasoline, which was one of the main products of the great corporation which has done so much to favor the people of the United States. The company deserved the gratitude of the people, and it was not fair to try to rob it of its just dues, even though it was done covertly.

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"He said that the machine which Elijah used was undoubtedly a gasoline motor, for the Standard Oil Company held a direct assignment of the patent. He had not seen the original patent, or the assignments, but he knew that the company must have it, because it never lets a good thing get away.

"Citizen Ampt disagreed with Mr.

Stallo and the other gentlemen. The motive power was undoubtedly compressed air, and the reason that the machine had not come into general use was that the inventors had been enjoined from using the raw material—the air. He had looked the matter up in his injunction suit against the Compressed Air Company, of this city, two years ago.

"M. E. Ingalls agreed with Mr. Ampt. He said air was the greatest power known, and had been the most effective. The raw material cost nothing, and the supply could not have been exhausted, even if all the motors used since the days of Elijah had been propelled by it. He then went into an argument to prove that no motive power, from the ox to the steam engine, could be generated without air.

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"General Lew Seasongood, who is an authority on ancient history, and especially the Old Testament and the Talmud, said that there could be no doubt of the solid fact that Elijah rode in a horseless carriage, for horses were not known as domestic animals until long after the days of the venerable prophet.

"Eugene Lewis, who is a member of every known secret society, suggested in a modest, first-degree voice, that the chariot might have been drawn by goats, for he could testify that they were the roughest as well as the most powerful animals he had ever tried to ride.

"Colonel Jeptha Garrard took the ground that Elijah must have ridden away on a self-propelling bicycle and that that was the reason why he didn't take his cloak along. Such a garment would certainly have got mixed up with the machinery of the bicycle. He had seen many pictures in old Bibles of the style of dress worn in the days of Elijah, and he was confident that the skirts were not long enough to reach down to the gear of the machine.

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"Of course," continued General von Niemand, "the proceedings of the club are secret—just as secret as are the proceedings of an executive session of the United States Senate, that's why I don't want you to use my name if you print

what I have told you. Of course, it would please all the speakers to read their able arguments in print, but it would be a violation of the rules for me to give out what they said."

Then the General took a picture of Mrs. Nation from his pocket, and held it near the glass which embraced the Man-

hattan cocktail he had ordered, and finding that it did not break the glass he remarked:

"George Washington and Mrs. Nation are the only two people who have been made famous by the use of a hatchet."

The waiter handed him a check which the General paid and went out.

## CONCERNING THE CARRIAGE YOU HIRE



**G**AINING ground every day, is the present situation of the automobile cab and carriage service in large cities. It was only about two years ago that the people on the streets stopped, turned, watched and commented on the large hansom and other forms of electric vehicles for public hire, that passed.

The sight was novel, and many conjectures were made as to the probability of the vehicles being kept in service.

"Will they stand the racket?" or, "Can they be run as cheaply as horse cabs?" was asked. The answers are given in the rapid, almost marvelous development of the service in all the large cities of the country. They have stood the racket and the expense of their operation has been brought sufficiently low to allow the establishment of rates of hire which are not conducive to good cheer on the part of the whip-in-hand cabby of our forefathers' time.

From a depot to hotel for twenty-five or fifty cents, according to the distance; from residence, to theatre and return for one dollar; shopping and calling trips for one dollar an hour; from residence to parties, weddings, receptions and return at any hour for \$2.50; these charges in the current practice of the electric cab, carriage and omnibus service show that the question of "Will they fill the bill?" has been replaced in the minds of the public by "How long will

it be before they are in universal use?"

All manner of omnibusses, cabs, carryalls and carry-you-alones have greeted you as, in days past, you have alighted from a railway train to undertake the duties of pleasure or business on your arrival in a large city; you have experienced all manner of jostling over block pavements and perhaps you have experienced divers attempts at over-charge on the part of independent cabbies.

Now there is another transportation service at your disposal and, by simply stating your wish in the matter to the conductor of the train which carries you from one part of the continent to another, you may have, ready and waiting for you upon your arrival at the terminal station, any sort almost of electric vehicle to delight your heart and hasten you to hotel, business house or residence. The charge is always the same, is no higher than you have been accustomed to paying, and large rubber or pneumatic tires reduce inequalities of the road and make the streets seem smoother than they did in days gone by.

Automobiles for public hire are the order of the day. Automobiles to supplant the primitive stage coach in regions unreached by railways are rapidly becoming fixtures in public affairs. Automobiles to meet trains; automobiles to carry merry folks to theatre or party; automobiles to hasten the work of sober business; automobiles to change the character of our city liveries and of our city streets; automobiles, the new, are finding a way into every crack and

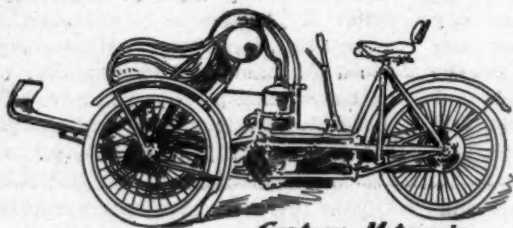


cranny of our commercial and social life.

The electric cabs which stand in front of hotels and railway stations; the automobiles which will carry visitors to the Pan-American exposition grounds from the business center of Buffalo next spring; the automobiles which certain Chicago liverymen have purchased for their private use despite the numerous

spirited, handsome, bang tailed and curtailed editions of horse flesh in their stables, are but items in the progress of automobile service for public use. The general advancement of the automobile in other lines also tends to hasten the coming of the day when all of the cabs we hire, all of the omnibusses we patronize and all of the carriages we engage will carry their own power.

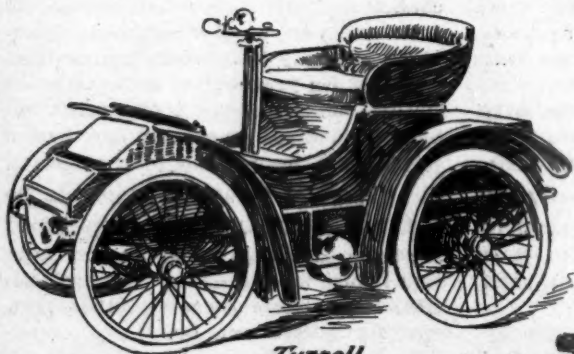
## CURRENT POPULAR PATTERNS OF ENGLISH AUTOS



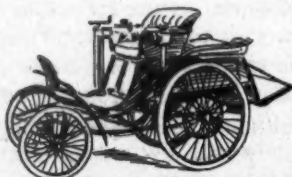
*Century Motorcycle,*



*Orient Express,*



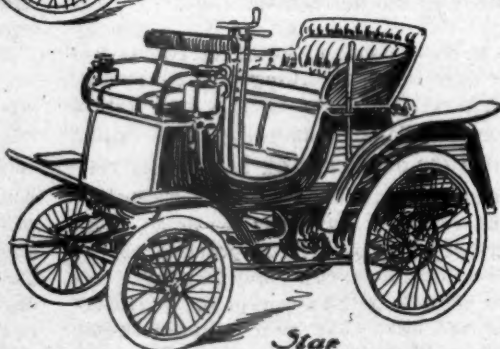
*Turrell,*



*International Doctor's Car,*



*Gannello-Durkopp,*



*Star*  
MOTOR AGE



# THE MOTOR AGE

## INFORMATION FOR BUILDERS AND BUYERS.

**L**ARGE rollers and long wear are two important and concomitant features of the automobile hub bearings manufactured by the Moffett Vehicle Bearing Co., 86 Ohio street, Chicago. These bearings are made in two patterns for light and heavy vehicles, respectively, and each pattern is applied to various styles of standard wheels for different uses. The principle of construction of the two patterns being the same, but one, the heavier pattern, is illustrated herewith.

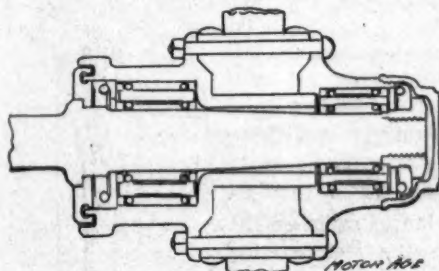
The bearing is combination roller and ball, rollers used to sustain the running weight and balls being employed to receive the end thrust. Also, each roller is a combination ball and sleeve device, it being comprised of a center pin on each end of which is a race of balls supporting an external sleeve which forms the roller of the bearing proper. The center pins of the rollers are attached to end rings and thus each set of rollers is a compact, independently assembled, self-retaining group or roller ring which is slipped over the axle of the hub.

Numerous minor features in the construction of the bearings have been evolved with great care and with a view to making them not only frictionless to the greatest degree possible but to also rid them of complication and to insure long service without attention.

The axles are made of specially selected high grade steel stock and carefully case hardened. They are forged from

the solid bar and have no upset collars. The diameter of the spindle next to the collar is greater than the size of the axle arm, thus insuring increased strength at a vital point.

The bearings are furnished to be applied to either metal or wood hub wheels and the company is also prepared to furnish them for special work of any capacity in the road vehicle line, being ready to submit estimates on receipt of information as to requirements. For



Moffett Roller Bearing

automobiles the Moffett bearing is supplied for hubs with both wood and wire wheels and also for bearings on rear axles.

A special feature of the method which has been adopted by the company for handling its business is the announcement by it that after one year from the date a set of Moffett bearings is put into service the user may, if not perfectly satisfied with the bearing, return the same to the company by freight and secure a refund of the purchase price.

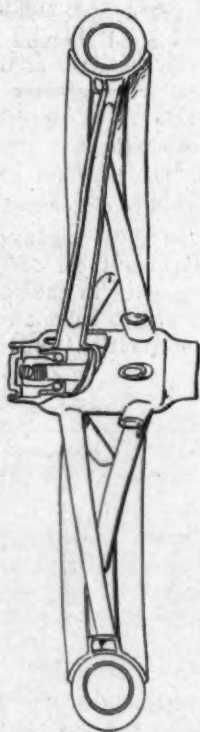
Such a liberal agreement is not only a guarantee of good faith on the part of the company but also a guarantee of the excellence of the goods, for no concern can expect to profit by such an offer unless it also feels confident that its goods will make the keeping of the promise an easy and inexpensive matter.

### TUBULAR STEEL WHEELS

There are a great variety of wheels on the market which are adapted to automobiles, and there are also a great number of styles in actual use. The Midgley Mfg. Co., of Columbus, O., is introducing a steel wheel which it claims to be not only especially applicable to automobiles but extremely desirable for such vehicles.

The accompanying illustration shows the principle of construction of the Midgley wheel. It has steel rim and hub and tubular steel spokes, the latter being of oval taper tubing and staggered sufficiently to strongly brace the wheel against side strains. The method of seating the spokes in the hub and rim are special features for which the makers claim both originality and strength. Another feature of the construction is the rust preventive brass lining of the parts throughout, the same being applied at the time of brazing the parts together by the immersion process.

Prior to the brazing the parts are assembled in suitable jigs and thus after being brazed an alignment is secured which is claimed to be practically per-



fect. The rim used is also of special construction, being made of a round tube pressed down into shape with its walls close together. The wheel is patented in this country and application for patents have been made in Great Britain, France, Germany, Austria and Canada.

### PREVENTS EXCESSIVE SPEED

Letters patent have been granted to B. E. Dakin, 304 C street, N. E., Washington, D. C., for a simple lock and speed controller for automobiles. When attached to a vehicle it is intended to make it impossible to increase the speed to a limit faster than the degree to which the graduated dial is set. The device is, of course, mainly of interest to automobilists in cities which have speed limit regulations which it is not desired to exceed, although it is also useful to instruct novices and for attachment to renting machines. The locking feature of the device comprises a throttle lever key lock whose utility is evident. The attachment is now being manufactured and will be placed on the market within several weeks. Application has been made for foreign patents and arrangements have been perfected with a New York firm to handle the European interests.

### THE LARGE MOTORETTE LINE

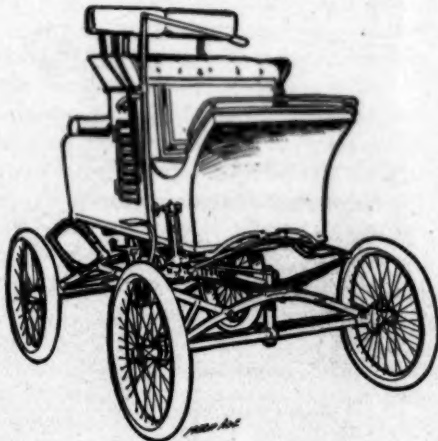
The numerous types of DeDion-Bouton Motorettes manufactured by the De Dion-Bouton Motorette Co., Church lane and Thirty-seventh street, Brooklyn, are described in a neat little twenty-page booklet recently published by the company. The models shown include: Model A, New York type Motorette, for two persons, price, \$1,100; Model B, New York type Motorette, for three persons, price, \$1,150; Model C, New York type Motorette with top, for three persons, price, \$1,250; Model D, New York surrey, for three persons, price, \$1,250; Model A, No. 2, New York type Motorette, for four persons, price, \$1,500; Model B, No. 2, doctor's Motorette, for four persons, price, \$1,600; Model C, No. 2, New York surrey, for four persons, price, \$1,500;

Model D, No. 2, doctor's brougham, for two persons, price, \$2,000; Model E, No. 2, doctor's brougham with rumble, price, \$2,100; Model F, No. 2, doctor's octagon front brougham, for four persons, price, \$2,350; No. 2, delivery wagon, capacity, operator and 750 pounds, price, \$1,600; Brooklyn type Motorette, for two persons, price, \$850. The number two machines are more powerful than the number one models, being fitted with 5-horsepower motors.

#### AN OMAHA STEAM CARRIAGE

The high stately looking steam carriage shown in the accompanying illustration was recently completed by Harry Sharp, 1314 Howard street, Omaha, Neb., for his own use. It has the standard type of heat flue boiler and double cylinder upright marine engine. Particular features to which the builder calls attention are as follows:

Automatic water feed for boiler.—This attaches to the steam water pump and is placed on the normal water line. The pump is arranged for constant operation with regulated by-pass so that when the boiler is full the water will return to the water tank. On the other hand, should the pump not be kept in



The Sharp Steam Carriage

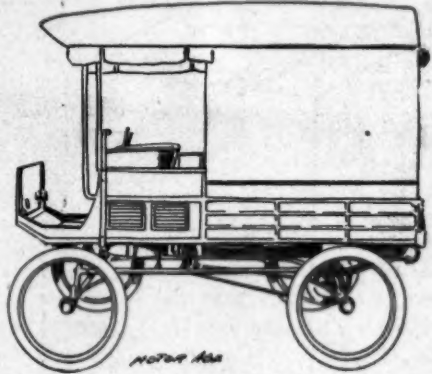
constant operation, an automatic regulation device starts it when the water reaches the low limit in the boiler and when it fails to work properly a whistle announces the fact.

Exhaust.—The steam passes into a coil

of pipe in the water tank and after the vehicle has been run a short while the water will be warmed and the vapor discharged at the final outlet will be hardly noticeable.

#### MILWAUKEE DELIVERY WAGON

The recently issued catalogue of the Milwaukee Automobile Co., of Milwaukee, presents, in addition to comprehensive



Milwaukee Delivery Wagon

descriptions of the various patterns of single and double seat Milwaukee steam carriages and their machinery, a light steam delivery wagon.

The vehicle is shown in the accompanying illustration. The Milwaukee company recommends it for retail grocers, dry goods, laundry, express and undertaking houses and for mail carriers and collectors, city buyers for wholesale houses, newspaper delivery, traveling salesmen with samples and similar persons and purposes. It has a capacity of driver and 600 pounds, is fitted with 3-inch pneumatic tires, tracks and ordinary country road and weighs, with gasoline and water, ready for service, about one thousand pounds. The gasoline tank holds 7 gallons, sufficient for 70 miles of travel on ordinary roads, and the water reservoir 30 gallons, good for 30 miles. Portable tops or covers, either of canvas or wood, can readily be added as shown in the illustration although the standard equipment is without. The additional cost for the cover is slight.

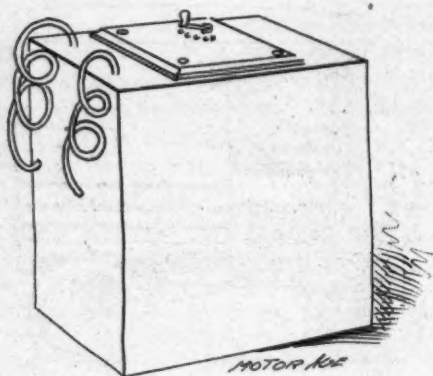
The company's catalogue contains much interesting descriptive matter relative to steam vehicles in general and the



Milwaukee wagons in particular and is neatly compiled and artistically illustrated and printed.

#### CHEAP IN THE END

Nowadays the much used phrase, "The best is none too good," is in no line of products better illustrated than in the batteries used for gasoline



The Dow Compound Battery

motor carriages. Just as a chain is no stronger than its weakest link, the best hydro-carbon motor carriage ever built is a source of annoyance and discomfort if the batteries supplying the spark are poor in quality. The Dow Portable Electric Co., 218 Tremont street, Boston, takes pride in the fact that its battery is probably the most expensive one manufactured, when only first cost is taken into consideration, but when durability and efficiency is considered it is, they claim, by all odds the cheapest.

The firm has been experimenting with batteries for over eight years and during that time has spent a large amount of time and money in perfecting the battery it is now producing. The Dow battery when new will give from 10 to 12 amperes current at  $1\frac{1}{2}$  volts and every battery is carefully tested before leaving the factory. The Dow compound battery, No. 44, registers 6 volts and 10 to 12 amperes, and the compound battery, No. 66, registers 8 to 9 volts and 10 to 12 amperes. These batteries are put up in convenient form and occupy but very little space, and by the use of the re-

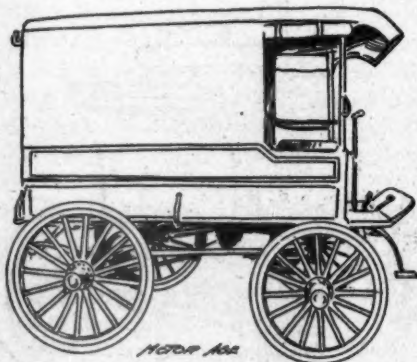
sistance rheostat effect a great saving of battery power.

#### CLARK'S STEAM ENGINES AND WAGONS

For the past seventeen years Edward S. Clark, 272 Freeport street, Boston, has been building marine engines. Some of the best known yachts on the New England coast are the products of his shops. Consequently when he entered the automobile industry it was with a knowledge born of long experience. He is producing complete vehicles and engines.

The Clark engine shows in its construction the effect of a marine experience. It weighs only forty pounds, but it is remarkable for the rigidity and strength with which it stands the many and varied strains to which an automobile engine is subjected. The cylinders are of close grain cast iron. The framing is steel and bronze. The crank shaft is cut out of a solid bar of steel, as is also the one piece piston head and rod. The cross heads and all bearings are of phosphor bronze. Each engine is complete with feed pumps and twelve tooth sprocket for 5-16-inch chain, 1-inch pitch.

The carriage made by Mr. Clark has



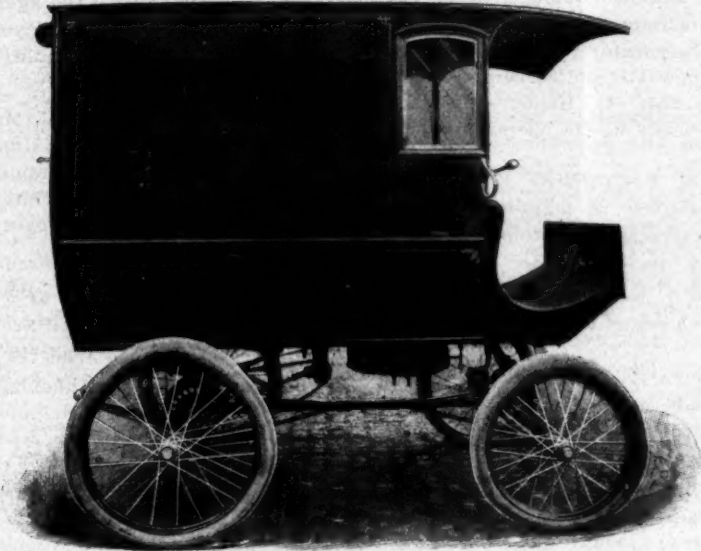
Clark's First Steam Wagon

but two handles, one for steering and the other for regulating steam and reverse motion. A twist of the hand opens the throttle and raising the handle reverses the engine. Mr. Clark has adopted several improvements in his delivery wagons, the gauge and water tank being



thoroughly protected from the weather, making the wagons practical at any time of the year. In fact several have

style which characterizes the methods of the company in the conduct of its business and the production of its ve-



CLARK'S LATEST STEAM WAGON

been used around Boston during the severest parts of the present winter.

hicles. The brochure will be mailed to any address upon receipt of ten cents in stamps.

#### DIFFICULT TO SURPASS IT

The finest catalogue ever issued in the automobile business—and that means that it must be superb—comes from the National Automobile & Electric Co., of Indianapolis, which, for the last twelve months, has been engaged in thorough preparation for the production of electric vehicles. As an advertising booklet it is one of the best which the famous Orr press of Bartlett & Co. is capable of producing, and this is also a token of its general elegance and typographical merit.

The cover presents in poster style with green and red predominating in the color scheme, a golfing party of three on the way to the links in a handsome National electric trap. The interior of the catalogue is resplendent with half-tone illustrations from wash drawings, and the typography throughout matches the illustrative work. The catalogue furnishes an idea of the completeness and general

#### NEW INCORPORATIONS

Brookings, Neb.—Mobile Tire Co., \$150,000. Incorporators: Edward Nelson, Henry W. Boardman and George P. Hall.

Eureka, Cal.—Motor Mfg. Co., to buy, sell and operate motor vehicles; \$25,000. Incorporators: A. L. R. Hendricks, F. W. Pease, D. C. McDonald, Frank E. Cook and George T. Rolley.

Cincinnati, O.—Cincinnati Automobile Co., \$25,000; to manufacture motor vehicles and operate an automobile livery.

Los Angeles, Cal.—American Wave Motor Co., \$300,000, to manufacture motors. Directors: A. J. Stevens, Vincent Gifford, Albert Villinger, D. S. Gillespie, W. A. Colwell, W. C. Pertchner, all of Los Angeles, and H. G. Watkins, Hemet, Cal.

New York.—The capital of the Consolidated Rubber Co. will be reduced from \$10,000,000 to \$5,000,000 by cancell-

ing \$2,000,000 treasury stock and issuing debenture bonds for \$3,000,000.

Columbus, O.—Cincinnati Automobile Co., capital stock \$25,000.

Chicago.—Illinois Motor Transit Co., \$50,000, to operate automobiles for public use. Incorporators: John Armstrong, John T. Ainsworth and S. D. Enochs.

Niobrara, Neb.—C. Hemstreet's automobile line will be in operation about March 1.

Oswego, N. Y.—Tonkinn Steam Carriage Co., \$50,000, to manufacture boilers and appliances for automobiles.

York City, Pa.—A factory will be established by J. K. Hinkle, for the manufacture of spokes of all kinds.

The Wisconsin Wheel Works has received an order for a motor bicycle for William Jennings Bryan.

Prince Wells, one of the oldest and best cycle dealers in Louisville, has taken the agency for the Toledo steam wagon made by the American Bicycle Co. He has a sample on exhibition.

Two automobile agencies have been established in Minneapolis, one carrying the Orient line of motorcycles and gasoline vehicles, and the other the electric carriages of the Woods Motor Vehicle Co., mobiles and Cleveland tricycles.

The business of the Grout Bros., of Orange, Mass., is steadily growing. They have received an order for a vehicle to be used by the fire department at Springfield, Mass., and have made a deal for ten carriages to be shipped to South Africa. In addition to these they have under way a dozen advertising and delivery wagons for the Whitman Grocery Co. The business is conducted by two brothers. Mr. Grout, Sr., is at the head of the New Home sewing machine business, whose plant is a mammoth affair.

The firm started last year to build gasoline vehicles, but eventually adopted the present form of steam carriage.

Mr. Shinholzer, a vehicle dealer at Macon, Ga., has secured the agency there for the Cleveland motor tricycle. This gentleman will also handle automobiles.

Dr. C. E. Smith, of Athol, Mass., who owns and operates a New Home steam carriage of Grout Bros.' manufacture is seldom daunted by inclement weather but is seen out in his rig every day on business or pleasure bent.

An enterprising, rapidly-growing concern is the Milwaukee Electric Co. It has just decided to extend its premises at 284 Read street, by annexing the adjoining building and anticipates that a further extension will be made before the close of spring.

The American Steam Pump Co., of Battle Creek, Mich., has conceded to the requirements of their customers in the motor industry by adding air pump connection to the Marsh steam automobile pump, an extremely successful independent boiler feeder for steam carriages.

It is announced that Louis Langan has severed his connection with the Motor Vehicle Power Co., of Philadelphia. The company reports a steady increase in the demand for its motors, which in addition to being made for automobile use are also built in launch and stationary patterns.

The Chicago Electric Vehicle Co., of Faribault, Minn., has just completed two vehicles for Mannheimer Bros., of St. Paul. They are the first produced at the factory. One is a stanhope and the other a delivery wagon. Mr. Batcheller, of the company, expects to make an attempt to place agencies in the near future.

"We will be there," is what makers, dealers and laymen are now saying relative to the Chicago Automobile Exhibition.

### A LITTLE ABOUT EVERYTHING

A representative of one of the big manufacturers is reported to have recently said to a reporter for the Times that Americans have an exaggerated idea of the number of automobiles used in France. He attributes this to the fact that the machines are greatly used for racing over there and are therefore given such publicity as to cause a false impression of their number. The statement is unquestionably true. The writer, while in Paris recently, was somewhat surprised at the few motor vehicles to be seen on the streets. In the suburbs and at places where the people gather to witness racing and other exhibitions many are to be seen, especially small vehicles such as tricycles, but in the more thickly populated parts of the city automobiles are almost as rare as they are in New York.

A crum of comfort for the horseman, from the Cleveland Plaindealer: "It will be a weary while before an automobile sells for \$60,000, no matter how fine its pedigree."

Dr. Gregory Doyle, of Syracuse, has written an opinion on the use of the automobile by physicians, which is altogether complimentary to the vehicle. "My odometer tells me," says the doctor, "that I rode 1,500 miles in my steam carriage last year. I therefore feel that my experience may possibly be of some benefit to those who have yet to learn the intricacies of automobilism."

"I find the steam carriage in many respects preferable to the horse; the expense of maintenance is very much less; it is not consuming anything when not at work; with good care it does not perceptibly age; when in use it is under perfect control, and can be used in any reasonable weather. We cannot say as much for the horse."

"During my career of over thirty years as a practitioner of medicine and surgery, I have constantly used horses, but from my comparatively short experience with the latest vehicular evolution I feel that I never again will return to the

horse, excepting, possibly, for an occasional saddle ride.

"From what I have learned, theoretically and practically, concerning the automobile, I am fully convinced that it is destined to become, in the near future, the vehicle par excellence of the medical profession."

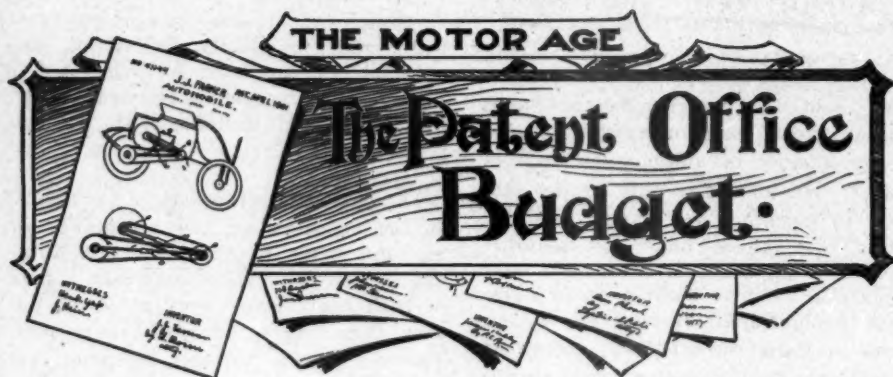
The postoffice authorities of Columbus, O., are considering the acceptance of an offer made by the Columbus Autocab & Delivery Co. to undertake a part of the department's work at lower figures than the same work costs now. The company's vehicles are not yet ready, however, and they are not expected to be in operation before the first week in April. The company's plans are ambitious for they include everything from cab service to delivery wagons.

Among the people who have been busy working on motorcycles is the Jonas Cycle Co., of Milwaukee, and the results will be found in a machine to be offered to the public shortly. The company's works are on National avenue and to these additions were recently made which will increase the capacity to such an extent that the company is confident of cutting an important figure in the industry. A new catalogue has just been issued.

Otto Dorner, for years one of the most ardent advocates of good roads in Wisconsin, recently addressed the senate committee on roads and bridges, urging a resolution for a constitutional amendment authorizing state aid in the construction and maintenance of highways. The members of the committee did not argue the question, but it is understood they do not regard the proposition with favor.

The latest motor bicycle is the production of the Wisconsin Wheel Works, of Racine Junction, Wis. It was given a public trial a few days ago to the perfect satisfaction of the makers, and a large number of cyclists who were present on the company's invitation. This is the concern that is making a motor bicycle for William Jennings Bryan. It is also making automobiles.





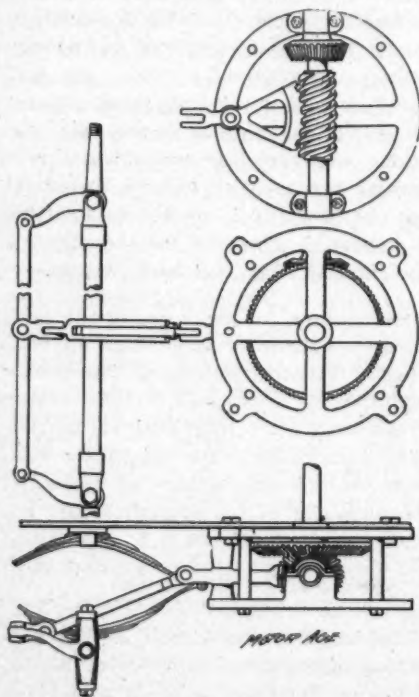
**T**HE INVENTIONS comprising the last batch of motor vehicle patents granted are a more interesting lot than has been issued for several weeks. A number of devices which

ruary 12, 1901, to Horace S. Ingalls, of Saugus, Mass.

The object of this invention is to provide a positive or locking mechanism which will stand in the position to which it is moved without causing strain upon the hand of the operator.

On a transverse horizontal shaft supported by a frame secured to the under side of the vehicle body is a bevel gear pinion which meshes with a large bevel gear on the lower end of the vertical post of the steering handle. Also on the cross shaft is a worm gear which engages the teeth of a segmental gear pivoted on a vertical pin at the front of the mechanism frame. This segmental gear has a forward arm to which is hinged an extensible or telescopic link connecting with the cross link of the steering knuckles. The hinge joints by which the telescopic piece is united to the arm of the segmental gear is such that only vertical play is allowed, horizontal movement being prevented. The link thus moves in unison with the segment arm in the horizontal plane.

It is obvious that by turning the steering post through the medium of the hand lever or wheel the gears and worm will move the segmental gear accordingly, and thus swing its arm with the telescopic link to one side or the other to turn the vehicle. On the other hand, the tendency of the wheels to whip or operate the steering mechanism backward is stopped at the worm gear, no matter at what point in the arc of their



Ingall's Self-Locking Steering Gear

promise well, or which have been actually demonstrated to be practical, are described below.

#### SELF-LOCKING STEERING DEVICE

Letters patent No. 667,842, dated Feb-



swing the wheels may be, for within certain limits of pitch it will be impossible for the segmental gear to transmit motion backward through the worm. Vibration is thus not transmitted to the steering handle and the gear is practically self-locking under ordinary conditions and at the same time does not necessitate the exercise of a tiresome amount of power to be operated by the driver of the vehicle.

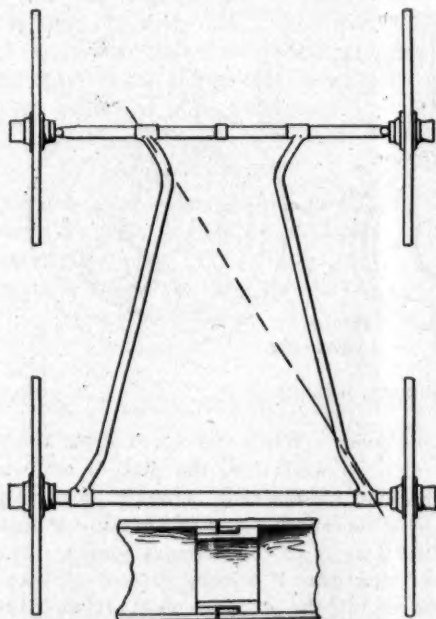
#### HINGED RUNNING GEAR

Letters patent No. 667,875, dated February 12, 1901, to William L. Carrels, of St. Louis, and Clinton Kimball, of Kirkwood, Mo., assignors to the Electric Vehicle Co.

Several patents assigned to the Electric Vehicle Co. have already been is-

represents the invention of westerners, whereas previous similar patents were granted to eastern men, shows that the company believes strongly in this type of running gear and is endeavoring to place itself in an exceedingly safe position for its use in many practical forms by purchasing patents from various quarters.

The illustration shows clearly the simple rectangular construction of the frame and the method of bending the reaches at their respective ends to secure diagonally disposed portions on which hinge joints may be made. One reach is hinged at the forward end and the other at the rear end. One of the forms of tubular hinge joints is shown in the enlarged detail view.



Carrels & Kimball's Running Gear

sued to various parties for the construction of running gears or vehicle frames of the type which is hinged on a diagonal center line to allow the wheels of the carriage to move in two vertical planes to accommodate themselves to uneven surfaces. This patent is the latest of the kind to be assigned to the big company and the fact that it

#### HATCHER'S TRANSMISSION DEVICE

Letters patent No. 667,911, dated February 12, 1901, to William A. Hatcher, of Warren, O.

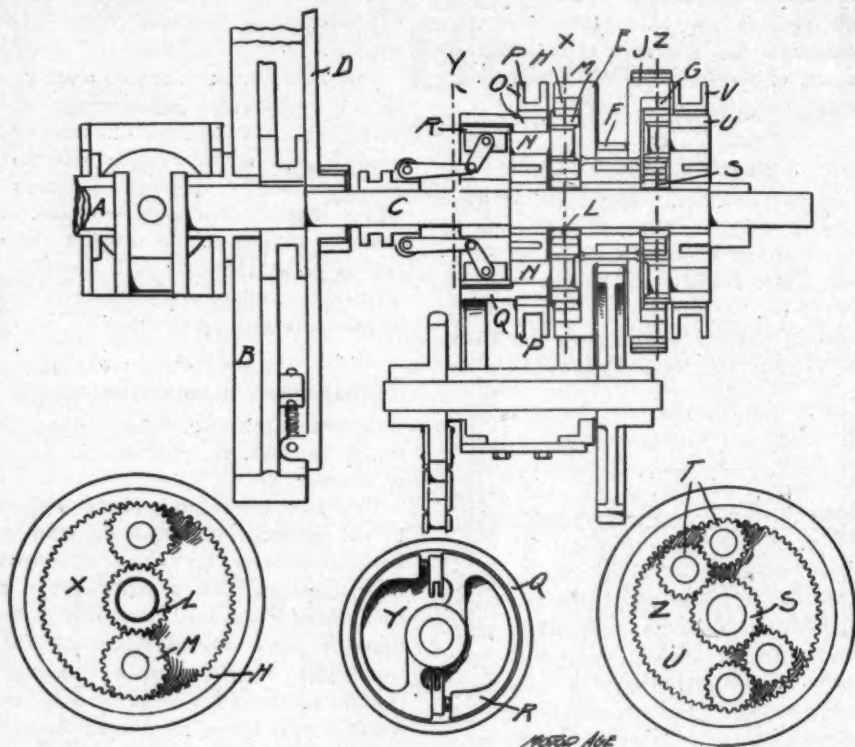
This is a voluminous patent referring to the methods for accomplishing variable speed drive, forward and backward, in connection with a hydrocarbon motor; braking and control of motor speed, together with several minor objects in connection with the main elements of the invention. The countershaft transmission gear is the most notable portion of the invention.

Upon one end of the motorshaft A is a flywheel B, and in line with the motorshaft is a countershaft C, the ends of said shafts being close together. Referring to the illustration, D indicates a frame or spider which is fast upon countershaft. The spider has a series of lugs, which are integral with and in the same circle with lugs upon the flywheel. Through each pair of lugs passes a circular rod, surrounded by spiral springs, which keep the spider lugs centrally located between lugs. The arrangement of lugs and springs forms a yielding connection between the motor and the driving wheels, which prevents strains in the machinery due to suddenly starting the motor or applying the brakes or to inequalities in the roadway.

Turning freely on the countershaft C

is a part E, which is provided with a power-transmitting gear F, two internal gears G and H, and a braking surface J, all of which parts are either integral or securely fastened together. The driv-

Integral with the disk O is a flange Q, within which are shoes R of an expanding clutch. The clutch shoes K are expanded by means of screws, arms, links, a sliding collar, and means for moving



HATCHER'S TRANSMISSION DEVICE

ing gear F intermeshes with a gear K, from which power is transmitted to the driving wheels by sprockets and chain.

A slow backward movement is imparted to the driving gear by means of a gear L, which is keyed upon the shaft, and intermediate gears M, which mesh with the gears L and M. The gears M are carried upon the studs N upon disk O, which is free to revolve upon the shaft G. Surrounding the disk O are brake shoes P, which may be applied to stop the rotation of the disk. When the disk O is stopped, power is positively transmitted from the gear L through the gears M and H to the gears F and K, giving the vehicle a backward movement.

the collar. When the clutch shoes R are rendered operative, the disk O and its pinions are carried around positively with the shaft c and the pinions M lock the gear N to the internal gear A. The driving gear F is thus rotated with the speed of the driving shaft H and the countershaft C, giving the vehicle a high speed forward.

A low speed forward is given to the vehicle by means of a gear S, fixed on the shaft C, and the two pairs of intermediate gears T, mounted on studs which are carried by a disk U, loose upon the shaft C. The disk U may be held stationary by brake shoes V, and when so held the internal gear G and the driving gear F will be slowly rotated for-

ward, thus cutting down the speed and increasing the pull upon the driving wheels.

When the machine is running full speed ahead the gearing between the shaft C and the driving gear F is eliminated, the parts being all rigidly connected together and the friction and wear of machinery reduced to a minimum.

#### FLEXIBLY JOINTED FRAME

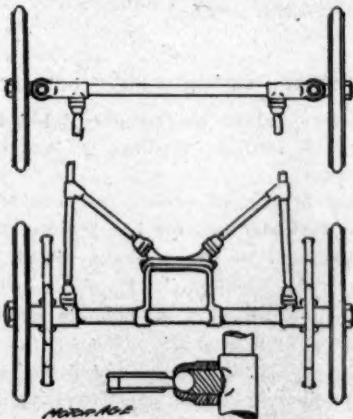
Letters patent No. 667,909, dated February 12, 1901, to William A. Hatcher and James W. Packard, of Warren, O.

This is a simple rectangular running gear in which flexibility to compensate for rough road surfaces is obtained by means of the application of flexible or universal joints to the corners and also to the rear ends of the oblique brace rods that run from the side reaches to the gear box frame on the rear axle. The detail view shows the construction of the universal joint employed.

#### FOR EASY STEERING

Letters patent No. 668,106, dated February 12, 1901, to George A. Long, of Boston.

This is another means toward the ob-

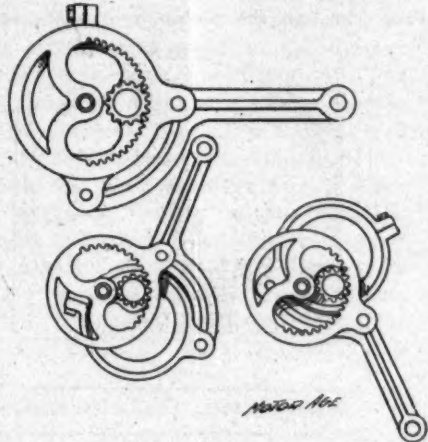


Hatcher and Packard's Flexible Frame

ject of accomplishing the much desired end of securing easy steering without the usual necessary concomitant of wide range of movement of steering lever or handle and also free from back-

ward transmission of vibration from the wheels to the operator's handle.

The inventor claims it to be a new mechanical movement especially applicable to motor vehicle steering gears.



Long's Steering Mechanism

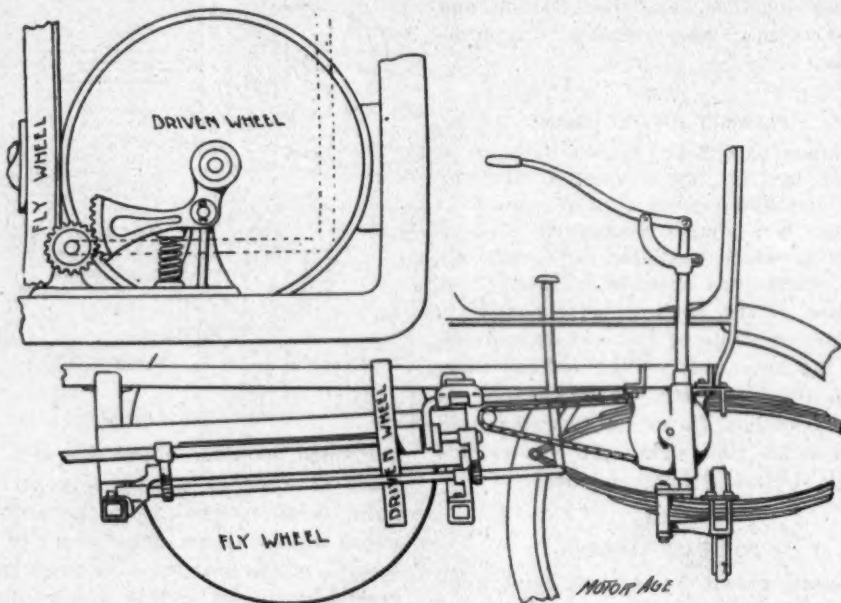
Pivoted upon the under side of a bed plate attached to the running gear or body, is an internal gear, the arms of which are so placed as to permit of the turning of the gear upon its pivot to as great a degree as may be deemed desirable. Journaled in the bed plate is an upright shaft, having a handle or other means of control at its upper end and carrying a pinion to mesh with the teeth of the internal gear. The lower end of the shaft passes through and below the internal gear and carries, rigidly affixed, an eccentric, immediately below the gear. It is obvious that movement of the shaft upon the axis will revolve the pinion, and so cause the internal gear to turn upon its axis, and will also revolve the eccentric. The eccentric has the customary strap by which motion is made effective. A projection upon the outside edge of the rim of the internal gear carries a pivot for a lever, one end of the lever being secured to the strap of the eccentric and the other and rearward extremity being connected to a longitudinal arm or bar which operates the steering mechanism of the front axle.

The operating lever moves upon two centers—first, it swings upon the pivot upon the rim of the internal gear, and,

secondly, it moves bodily with the gear as it revolves, and thus in a sense swings upon the axis of the gear as a pivot.

When the operator desires to turn the carriage, he turns the steering handle, which controls the shaft, and this in turn, through the pinion, moves the in-

furthermore, that the compound leverage gives to the mechanism the practical effect that it will hold its position, as placed, against force applied to the wheels; so that the steering handle does not require to be handled or controlled except when a change of direction is de-



WORTH'S FRICTION DRIVING VARIABLE SPEED MECHANISM

ternal gear and carries in the desired direction the operating lever. At the same time and by the same movement the eccentric is thrown, and that end of the lever which is connected with its strap is moved, throwing the other end of the lever a corresponding distance in the opposite direction, the pivot upon the rim of the gear being the fulcrum. Thus the lever is subject to two motions at the same time—one the bodily movement caused by the movement of the gear, and the other the movement caused by the swinging of the eccentric. The free end of lever therefore is thrown to one side or the other, as may be required, the sum total of the swing of the lever being cumulative.

The inventor claims that the compounding of the motion, as above described, gives to the operator the benefit of a leverage in his favor, while at the same time he has great rapidity, and

sired, the usual disagreeable jar of the handle being avoided.

#### CHICAGO MOTOR VEHICLE DEVICES

Letters patent No. 668,074, dated February 12, 1901, to William O. Worth, of Chicago.

This is one of several patents which were filed last fall for the various original features of the vehicles of the Chicago Motor Vehicle Co. It relates mainly to the transmission mechanism whereby positive and gradual speed change for both forward and backward drive is accomplished by means of a traveling friction wheel operating against the face of the flywheel of the motor.

The motor shaft lies crosswise of the vehicle and hence the shaft of the traveling friction wheel is longitudinal. These parts being rigidly mounted on the frame, transmission to the rear shaft is



accomplished by means of a telescopic shaft with universal end joints and bevel gears at the rear axle differential.

The friction wheel shaft is mounted on pivotal bracket arms, which are each furnished with a gear segment which meshes with a spur pinion on a rotary shaft or rod with a bell crank extension at the front, so that by pressing downward with the foot on its upper extremity it may be made to turn, and thus, by revolving the pinions, swing the segmental gear arm downward and bring the friction pulley wheel into contact with the face of the fly wheel. The throwing-in of the gear for driving is thus easily accomplished with the foot, the gear is at all times out of driving connection except when the foot controller is thus pressed, and the pressure of the frictional contact developed is within the control of the driver of the vehicle.

That the friction wheel may be made, at the will of the operator, to move across the face of the fly wheel to change the speed in an obvious manner, or to reverse the direction of the drive by being made to cross to the opposite side of the axis of the fly wheel, its hub is connected with a longitudinally slidable rod by means of the usual annular channel and fork arrangement common to similar constructions. The front end of

this rod is secured to the upper run of a chain running over a pair of sprockets, the forward one of which is mounted on a cross axle in a casing under the foot board of the vehicle and carrying, also, the steering post. On the steering post, which is of the double variety that it may be turned for swinging the steering wheels and also moved upward and downward by effecting a like movement of the steering handle, is a gear rack which meshes with a spur pinion on the hub of the front sprocket wheel. Thus the operator, by moving the steering handle upward or downward, can rotate the sprocket wheel and cause the chain to run backward and forward, carrying with it the attached rod and in turn the friction wheel of the transmission device.

Letters patent No. 668,073, dated February 12, 1901, to William O. Worth, of Chicago.

This Worth patent relates principally to the construction of the tubular frame of the Chicago company's vehicle and specifies, among other objects, the utilization of the frame members as an extensive muffler for the exhaust from the hydro-carbon motor. The final exhaust into the atmosphere is through a series of small holes in the rear cross tube of the frame.





## CURRENT MECHANICAL TOPICS



**A** TABLE of wheel speeds herewith will be found useful to anyone interested in designing automobiles of various patterns.

The building of an automobile for private use is not as difficult or as expensive as it was before the manufacture of parts had grown to be the regular business it now is; and it is more likely to be successful than it was when each special part, as engine, boiler, change speed gear, differential, etc., had to be experimented with in turn.

There is now considerable chance of success if an experienced mechanic selects the various parts from standard makers and assembles them according to the particular use to which the vehicle is to be put.

Motors, vehicles and many of the parts are gradually assuming standard lines of design, but the methods of changing speed between the motor and driving wheels are still various. The normal speed of the motor is always given in revolutions per minute and the speed of the vehicle in miles per hour. To design the mechanism, or give specifications to a manufacturer for an appliance to change the speed between the motor and the driving wheels it is necessary to know the revolutions per minute required of the latter for the speed required of the vehicle. This can be readily taken from the following table:

Diam. wheel. Speed of vehicle in miles per hr.		3.	6.	10.	12.	15.	20.	30.	40.
26.....	39	77	129	155	194	258	337	516	
28.....	36	72	120	144	180	240	360	480	
30.....	34	67	112	134	168	224	336	448	
32.....	32	63	105	126	158	210	315	420	
34.....	29	59	98	118	147	196	294	392	
36.....	28	56	93	112	140	186	279	372	
38.....	26	53	88	106	132	176	264	352	
40.....	25	50	84	101	126	168	252	336	
42.....	24	48	80	96	120	160	240	320	
44.....	23	46	76	91	114	152	228	304	

The first column contains the diameter of the wheels in common use, and the other columns give the number of revolutions per minute for the number of miles per hour shown at the top of the column.

For example, a vehicle fitted with 34-inch wheel is required to vary between 3 and 15 miles per hour. On the line with 34 and under 3 miles per hour is 29 and under 15 is 147. Therefore the change gear must take the given normal speed of the motor and vary it from 15 to 147 revolutions per minute.

The table includes ordinary sizes and speeds, but any other can be found quickly by the formula:

$$336 \div \text{diam. of wheel} \times \text{miles per hour} = \text{revolutions per minute of driving wheel.}$$

For example, a vehicle with 41-inch wheels running 25 miles per hour:

$$336 \div 41 = 8.19 \times 25 = 204.75 \text{ or } 205.$$

Slippage is not taken into account, as it varies with conditions.

### DURVEA ON VEHICLE STEERING

Reading, Pa., Feb. 9.—Editor Motor Age:—It is probably too early to profitably discuss details of motor vehicle construction. The motor vehicle purchaser has not reached that amount of education on the subject which permits him to understand and criticize details. At present he contents himself with insisting on an auto that looks like a horse carriage, that is, short, high, heavy, and as he expresses himself, "rich looking." Little incidentals like comfort, reliability, long life, large bearings, easy control, accessibility of parts, freedom from vibration, etc., are simply Greek to him, so an article on steering heads will probably appeal to but few users. It would seem, however, that on this point

more than any other, automobile makers have shown faulty judgment.

Cycling veterans remember the old special Columbia of '82 with 3-inch steering centers and a set screw longer than the centers themselves. They also remember the troubles therewith and know the history of the steering head which was slowly but surely increased until 10 and 12-inch steering heads on the safety bicycle became common. If a 3-inch head gave trouble on a machine like a cycle where the load did not exceed the weight of one rider and where the strain of striking obstacles was in a direction the reverse of the load strain and therefore partly balanced by it, it would seem evident to a novice that heads should be much longer on motor vehicles where the load is greater at all times and where, as in turning a corner or on a slanting roadside, the single wheel may receive a large proportion of the total weight of the vehicle, but in spite of this apparently self-evident fact, motor vehicles exist today having less than 3-inch steering heads and these are not confined to little machines but are found even on big electrics where the load is exceptionally heavy. It is surely no wonder, then, that many motor vehicles steer badly, but rather the wonder is that they may be steered at all.

The writer spent much time on this question of steering both in the development of the cycle and in the earlier days of the automobile and as a result of this experience three essential features seem to have been developed.

First, steering heads should be long so as to lessen the strain of carrying the load, lessen the friction and thereby insure long life and lessen the effort required for steering.

Second, the steering center line should stand in proper relation to the plane of the wheel just as it does in a cycle if the best steering results are to be obtained.

Third, the load on the steering wheels should be properly proportioned to the remainder of the vehicle and to the inclination of the steering head just as was the case in cycles. This latter may be better understood if attention is called

to the fact that the old Star bicycle with a great rake of front fork and a considerable distance between the steering center line and the point of the wheel contact was obliged to carry the weight almost wholly upon the rear wheel; whereas the ordinary with a straight fork and little or no distance between the steering center line and wheel contact point, carried the weight upon the front wheel, while the safety secured best results by an intermediate position of both weight and fork rake and distance.

Many experiments have proven, however, that the steering of an automobile may be made very easy if the steering heads are properly long and properly set and the weight thereon is properly proportioned. It would seem to need no argument to convince the public that steerings differ and that an easy steering is preferable to a hard one but until they have had sufficient experience to know something about steerings themselves they fall even to see that there is any difference at all. An easy steering is quicker to handle, more certain in action, less fatiguing on a long ride and generally more satisfactory and there is no reason why light motor vehicles may not be handled with the same ease, certainty and simplicity of mechanism that cycles are now handled.—Chas. E. Duryea.

#### FINDING OLD AUTOMOBILES

It is at least an interesting study to travel backward through the realms of mechanical antiquity in search of motor vehicles antedating previous finds in the way of relics. That the bringing to light of these derelicts on the sea of history is of assistance to the commercial end of the industry cannot be concluded except in the light of the fact that it creates and sustains interest in the entire automobile problem and thus does a little good.

Research, whether it is along scientific, mechanical or historical lines, is always attractive to certain men and the matter of finding old automobiles proves no exception to the general rule. Among the developments of the work of such



persons the amusing relic below has been recently brought to light by a Chicago gentleman:

The library of the Wisconsin State Historical Society has a unique collection of files of old newspapers. In one of them, the New York Spectator of August 7, 1799, is found a curious Fourth of July oration of the Hon. David Daggett, which the editor terms "a fine sample of severe and well-adapted sarcasm." This sarcasm is directed at progressive ideas generally. It takes on a new interest for the present generation in view of the results of 100 years of continuous effort at applying certain foolish ideas whose chief value originally was thought to be in their serviceableness as merriment makers for the national holiday occasion.

The address states that a machine called an automaton has been constructed not long since and is designed to transport a load by land without horses, oxen, or any other animal. The master is to sit at the helm and guide it up hill and down and over every kind of road. Then follows:

"Here if any ignorant fellow had been so uncivil he might have doubted why, if wood and iron were designed to go alone and carry a load, the whole herd of oxen, horses and camels were created."

After considerable more of the same sort as to some would-be flying and driving machines, the climax is reached as follows:

"These are a few among many modern inventions. All the principles of these various machines are capable of defense and the inventors are all great and learned and ingenious men. Yet, strange as it may seem, the stupid, foolish, plodding people of this and other countries still keep their oxen and their horses—their carriages are still made as they were a hundred years ago, and our coasters will still go to New York on the surface of the sound instead of sinking to the bottom or rising into the clouds—and they still prefer a fair wind and tide to the great profusion of steam, produced in the most scientific manner."

Another story of unrewarded early efforts in auto building is related by a

correspondent to the New Orleans Times-Democrat as follows:

As far back as 1860, and maybe for a year or two before, an automobile was to be seen frequently on the pike between Washington and Harper's Ferry. I often had business taking me on horseback between these points at that period, and I will never forget my amazement the first time I ever saw the machine. It was built on the general model of a heavy drag, and the steam engine that supplied the power was located in the front part, with a driver's seat in the rear. The machinery was inclosed in a sheet iron case, and was controlled by three or four levers, which protruded through slits in the top.

"I soon scraped an acquaintance with the inventor, who was an elderly gentleman named Schrader, and found him a most interesting character. He had been a captain of engineers in the Austrian army, but retired on a small fortune and came to America to live. The construction of the automobile had been a matter of diversion with him, and he told me he had been studying the problem for ten or twelve years.

"When we became better acquainted he showed me the working parts, and, while I am no mechanic, I remember that the apparatus impressed me as being remarkably simple. I am not certain what he used for fuel, but to the best of my recollection it was petroleum. The water for the boiler was carried in a tank under the seat, and on one occasion it sprung a leak when the captain was taking me out for a ride, and we came to a sudden standstill in a lonely countryside, miles from the nearest settlement. After waiting several hours a farmer came along with an ox team, and we got him to tow us home.

"Schrader was greatly chagrined by the mishap, and I got no more invitations to join him. I think, however, that the machine was, on the whole, successful. The war came on shortly afterward, and I lost sight of the old gentleman, never to see him again. I heard, at the conclusion of peace, that he had entered the union service in some clerical capacity and died at Washington. What became of his queer automobile I don't know."





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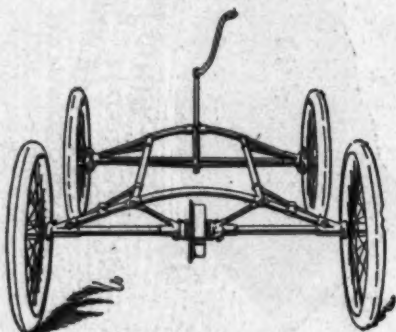
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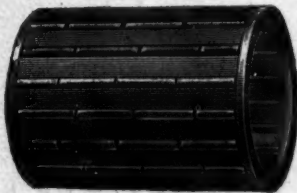
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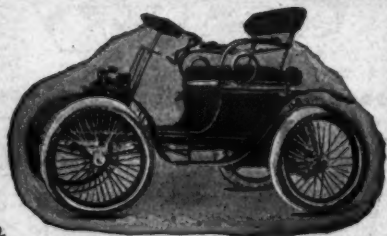
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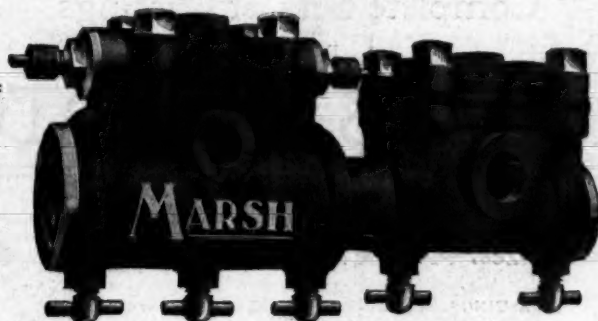
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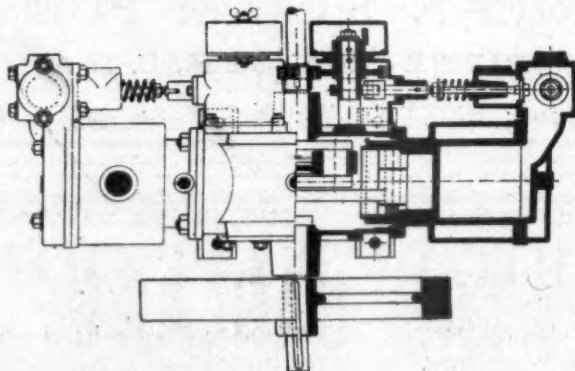
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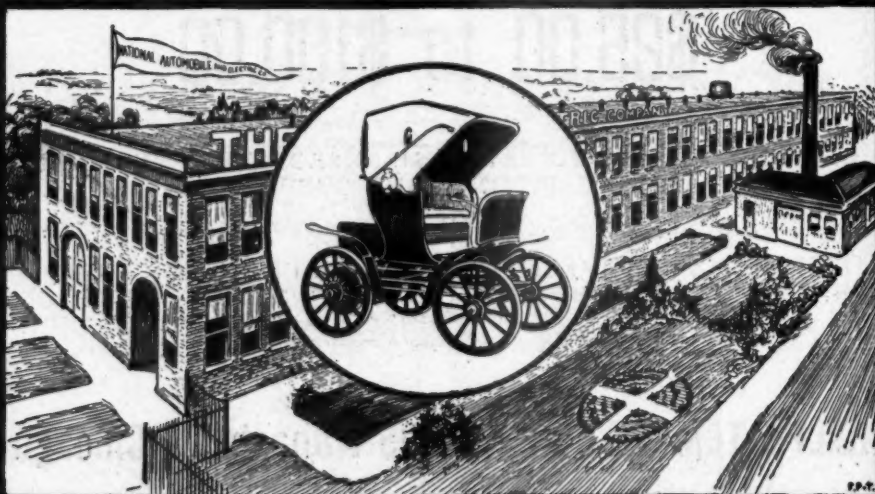
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